TOSHIBA

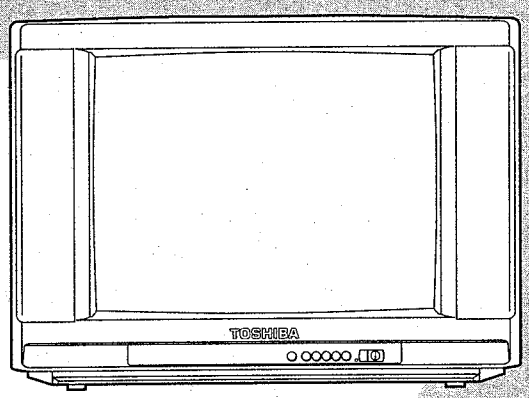
FILE NO. 040-9534

SERVICE MANUAL

COLOUR TELEVISION

S5ES Chassis

2955DE, 2955SH



PRINTED IN JAPAN, Jan., 1996 (So)

2039

SAFETY INSTRUCTIONS

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" INSTRUCTIONS BELOW.

X-RAY RADIATION PRECAUTION

1. The E.H.T. must be checked every time the receiver is serviced to ensure that the C.R.T. does not emit X-ray radiation as result of excessive E.H.T. voltage. The nominal E.H.T. for this receiver is 31.3 kV at zero beam current (minimum brightness) operating at 220V a.c. The maximum E.H.T. voltage permissible in any operating circumstances must not exceed 32.0 kV. When checking the E.H.T., use the 'High Voltage Check' procedure in this manual using an accurate E.H.T. voltmeter.
2. The only source of X-RAY radiation in this receiver is the C.R.T. To prevent X-ray radiation, the replacement C.R.T. must be identical to the original fitted as specified in the Parts List.
3. Some components used in this receiver have safety related characteristics preventing the C.R.T. from emitting X-ray radiation.
   For continued safety, replacement component should only be made after referring the Product Safety Notice below.

SAFETY PRECAUTION

1. This receiver has a nominal working E.H.T. voltage of 28.2 kV. Extreme caution should be exercised when working on the receiver with the back removed.
   Do not attempt to service this receiver if you are not conversant with the precautions and procedures for working on high voltage equipment.
   When handling or working on the C.R.T., always discharge the anode to the receiver chassis before removing the anode cap
   The C.R.T., if broken, will violently expel glass fragments. Use shatter proof goggles and take extreme care while handling.
   Do not hold the C.R.T. by the neck as this is a very dangerous practice.
2. It is essential that to maintain the safety of the customer all cable forms be replaced exactly as supplied from factory.
3. A small part of the chassis used in this receiver is, when operating, at approximately half mains potential at all times. It is therefore essential in the interest of safety that when serving or connecting any test equipment the receiver should be supplied via a suitable isolating transformer of adequate rating.
4. Replace blown fuses within the receiver with the fuse specified in the parts list.
5. When replacing wires or components to terminals or tags, wind the leads around the terminal before soldering. When replacing safety components identified by the international hazard symbols on the circuit diagram and parts list, it must be a Toshiba approved type and must be mounted as the original.
6. Keep wires away from high temperature components.

PRODUCT SAFETY NOTICE

Many electrical and mechanical components in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the X-ray radiation protection afforded by them cannot necessarily be obtained by using replacements rated at higher voltages or wattage, etc. Components which have these special safety characteristics in this manual and its supplements are identified by the international hazard symbols on the schematic diagram and parts list. Before replacing any of these components read the parts list in this manual carefully. Substitute replacement components which do not have the same safety characteristics as specified in the parts list may create X-ray radiation.

Features

Super crystal picture tube
Micro filter is employed and colour picture tube which attains higher-quality picture image is used.

AV terminals for external equipment connection
- Video/audio inputs.
- S-VIDEO terminal.
- Monitor output terminals.

NICAM and German stereo/bilingual broadcasts receivable

Off-timer and ON-timer
Turns off the TV automatically and will turn it back on at a preset time.

FASTEXT

Auto-Power-Off
If a vacant channel is tuned or TV broadcast for a day is finished, the TV will automatically turn off after about 15 minutes. However, if the Off-timer is operating, it takes precedence. This Auto-Power-Off feature does not operate in the VIDEO or blue background OFF mode.

No-Signal-Mute
When the system receives a TV signal from the aerial input (Ⅱ) which does not contain a video signal, the sound will be muted. This No-Signal-Mute feature does not operate in the blue background OFF mode.

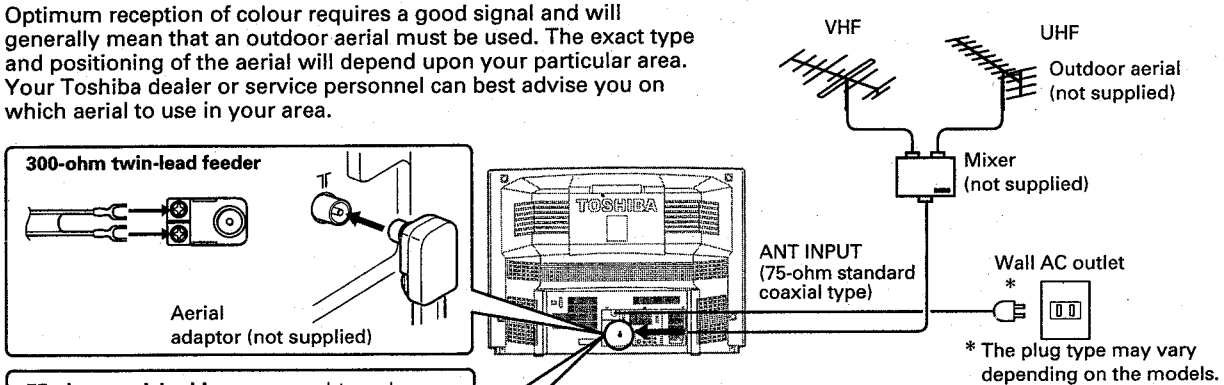
* **Note on the picture tube**
Normally, the screen surface should not be cleaned; however, if it is essential, clean the surface with soft, dry cloth while the TV is turned off. Never use any detergent cleaners to clean the surface. The screen surface may be scratch if a hard cloth is used.

Installation

- INSTALL the unit in a room where direct light will not fall upon the screen. Total darkness or a reflection on the picture screen may cause eyestrain. Soft and indirect lighting is recommended for comfortable viewing.
- ALLOW enough space between the unit and the wall for proper ventilation.
- AVOID excessively warm locations to prevent possible damage to the cabinet or components.
- RATED VOLTAGE: AC 110 V – 240 V, 50/60 Hz

To connect the aerial

Optimum reception of colour requires a good signal and will generally mean that an outdoor aerial must be used. The exact type and positioning of the aerial will depend upon your particular area. Your Toshiba dealer or service personnel can best advise you on which aerial to use in your area.

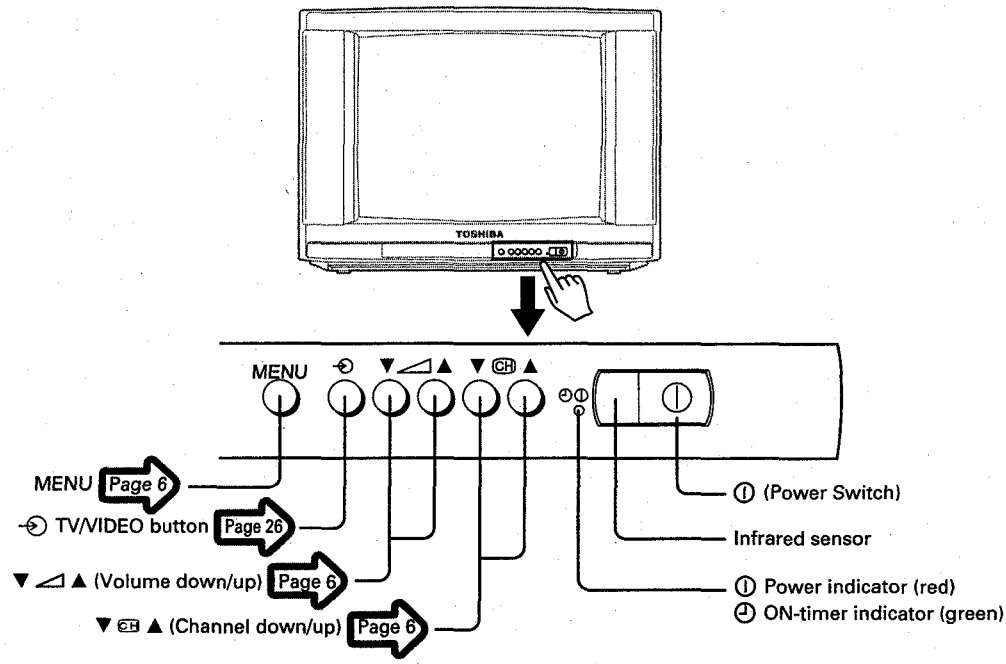


Notes
- When using an outdoor aerial, disconnect the leads of the indoor aerial, if connected, from the aerial terminal socket.
- It is recommended that the 75-ohm coaxial cable be used to eliminate interference and noise which may occur due to radio wave conditions.
- The aerial cable should not be bundled with the power cord and the like.

Names and Functions of Controls

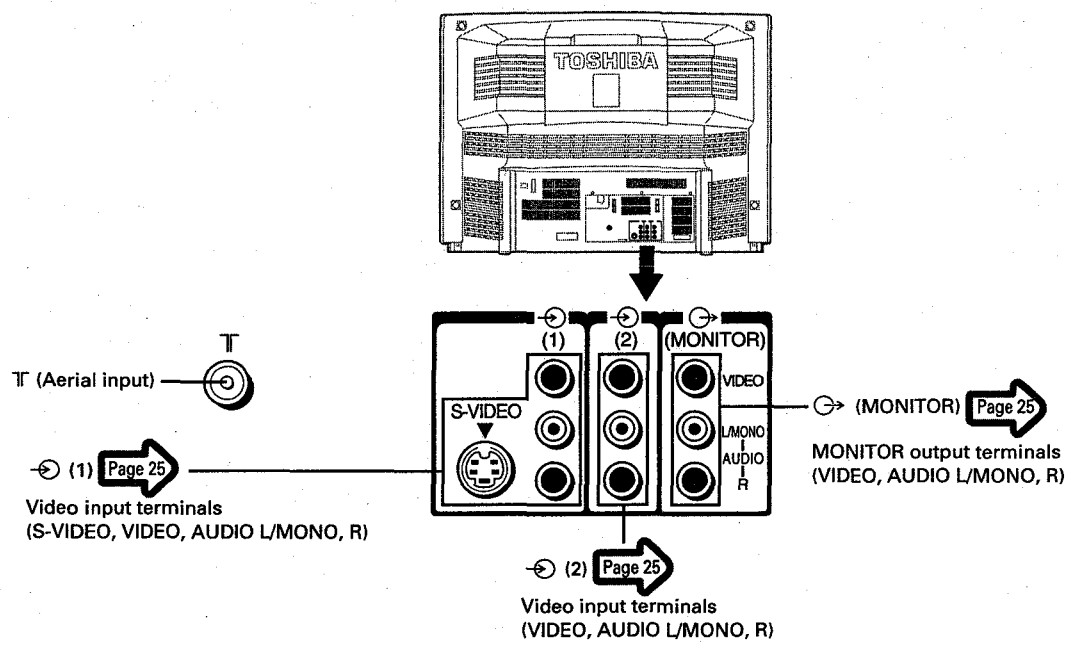
• The following describes the name of each part of the TV and Remote Controller.

Front

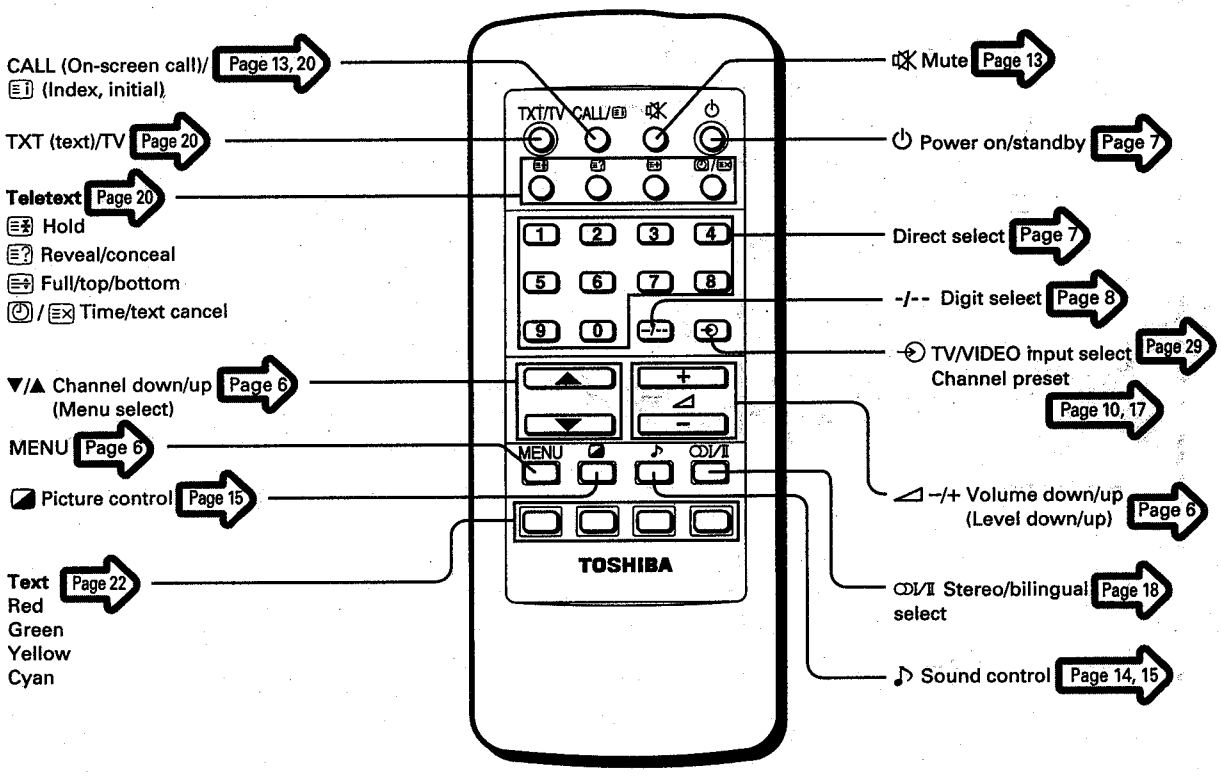


Note
Functions of MENU, ⊕, ▼ ▲ and ▼ CH ▲ are also provided to the Remote Controller.

Back

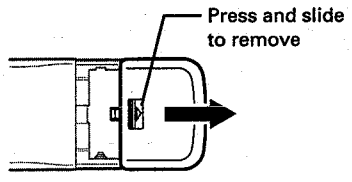


Remote Controller



Battery installation

1 Place the Remote Controller face down and remove the battery cover.

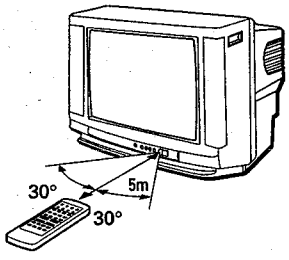


2 Insert two "AA" size batteries matching the + and – signs on each battery with the + and – signs of the battery compartment.

3 Slide the battery cover shut until the lock snaps.

Tips for remote operation

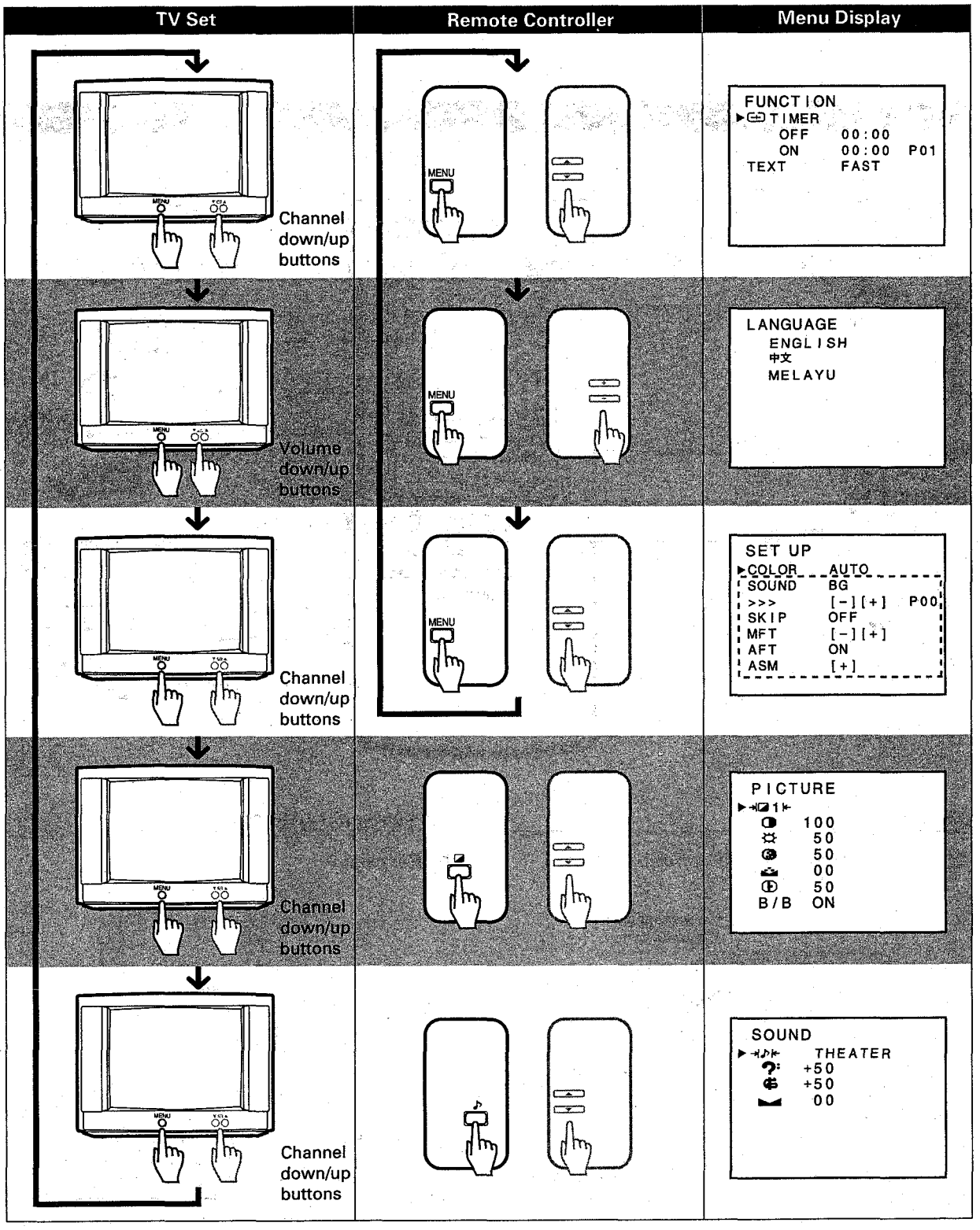
Effective range



- The battery life should be about one year under normal use.
- When the Remote Controller will not be used for a long period of time or when the batteries are worn out, remove the batteries to prevent leakage.
- Do not throw the batteries into a fire. Dispose of used batteries in the specified manner.
- Do not drop, dampen or disassemble the Remote Controller.

Menu Function

- Before watching the TV, please familiarize yourself the method to use the menu function of this TV set.



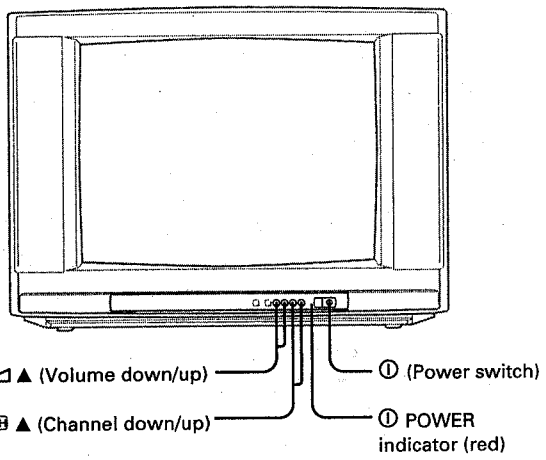
Notes

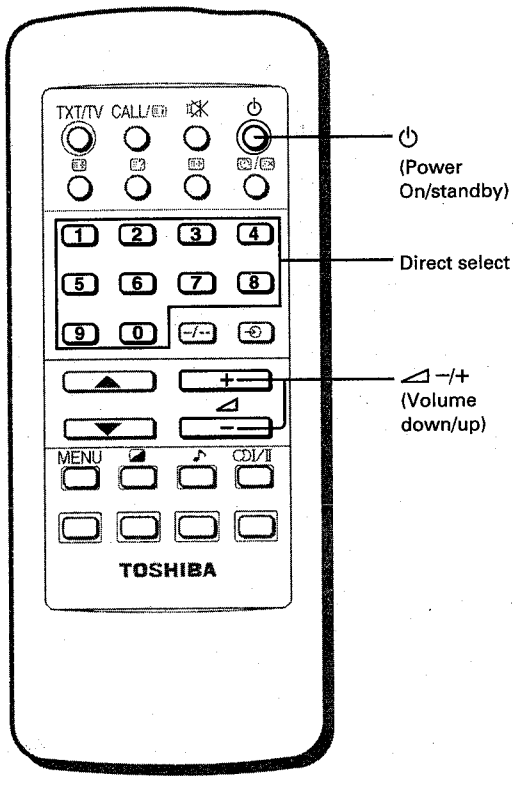
- The halftone illustrations above indicate that you press the button(s) to select the items on each function menu.
- The ⬚ *area on the SET UP menu display does not appear in the video mode.*

Turning the Power On/Off

- The following describes how to turn the TV on/off using the TV's main switch and the Remote Controller.

To turn the power on/off

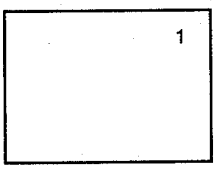




To turn the power on/off

1 Press the power switch. The red POWER indicator lights up.

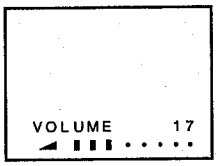
2 If no picture appears, press the ⏻ button on the Remote Controller.



Notes

- You can turn on the set also by pressing one of the direct select buttons (0 – 9) instead of the ⏻ button. By pressing the number (one digit only) where the channel you want to watch is preset, you can turn on the set and channel selection at the same time. (For the channel preset procedures, refer to pages 9 and 10.)
- When the Remote Controller is not at your hand, you can turn on the set by pressing the ▼ ◿ ▲ or ▼ CH ▲ button on the TV set.

3 Adjust the sound volume with the volume down/up buttons.



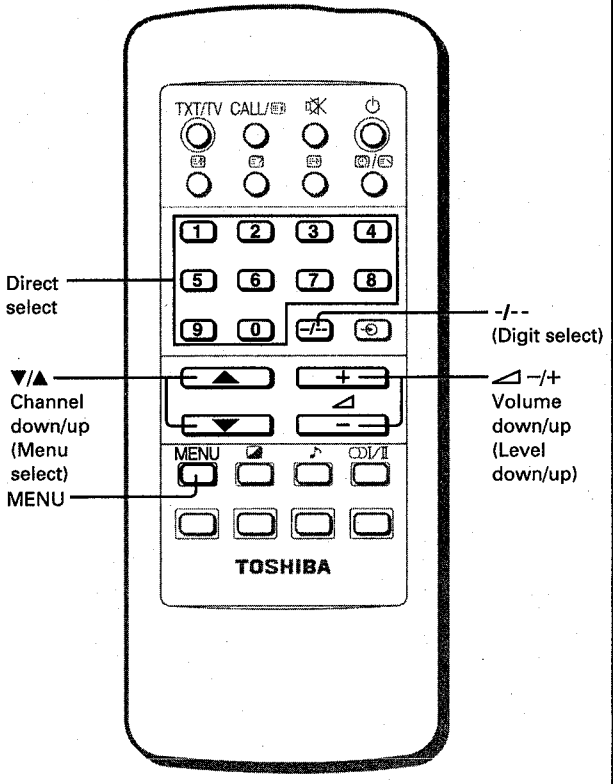
4 To switch to the standby mode, press the ⏻ button.

5 To turn off completely, press the power switch.

Watching TV Programmes

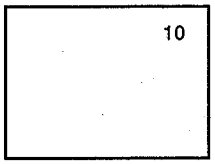
• You can watch TV programmes being broadcast on the preset channels.

To watch a TV programme



To select a TV programme

1 Select the desired programme.

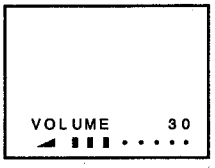


Using the direct select buttons

- To select a one-digit programme number: press the -/-- button to display "–" and 0 – 9 to select a number. (0 – 9)
- To select a two-digit programme number: press -/-- to display "--" and press 0 – 9 to select a number. (10 – 59)

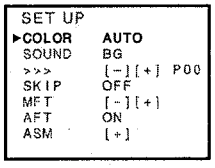
Using the channel down (▼)/up (▲) buttons
Press ▼ to select lower programme numbers; ▲ to select higher ones.

2 Adjust the sound volume with the ◿ −/+ buttons.



If the colour or sound of a certain channel is abnormal

The colour or sound system setting may be incorrect. Press the MENU button to call up the SET UP menu on the right and change the setting as follows: For the systems in each country, refer to page 27.



- **When the colour of the picture is abnormal**
  Press the ▼/▲ buttons to move the cursor (▶) to COLOR and select the correct colour system with the ◿ −/+ buttons.
  AUTO, PAL, SECAM, 443NTSC and 358NTSC will appear cyclically.
- **When the sound is abnormal**
  Press the ▼/▲ buttons to move the cursor (▶) to SOUND and select the correct sound system with the ◿ −/+ buttons.
  BG, I, DK and M will appear cyclically.

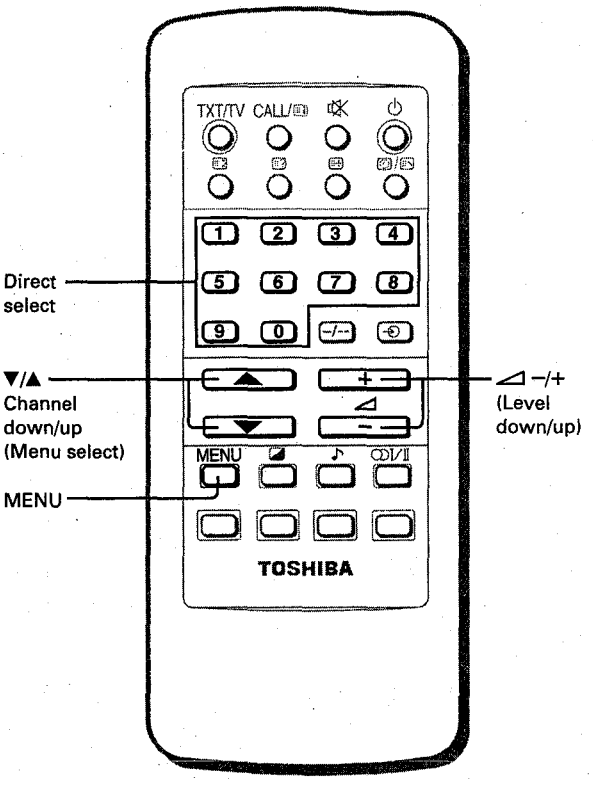
If the sound or picture of every channel is abnormal

Preset the channels using the ASM (Automatic Search Memory). See page 9.

Tuning in

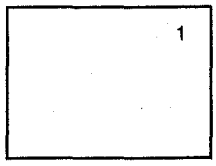
- First, use the ASM (Automatic Search Memory) function to preset all active channels in your area automatically.
  Then, arrange the preset channels with the SEARCH (>>>), SKIP, MFT (Manual Fine Tuning) and AFT (Auto Fine Tuning) functions so that you can tune into only desired channels.
- This section shows how to tune in channels using mainly the Remote Controller. You can also perform the system select, SEARCH (>>>), SKIP, MFT, AFT and ASM operations using the buttons on the TV set. See page 6.

To preset channels (ASM)

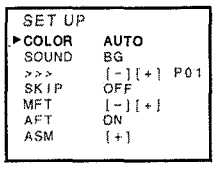


ASM (Automatic Search Memory)

1 Select the head of the programme number to start the ASM with the channel down (▼)/up (▲) buttons or the direct select buttons.

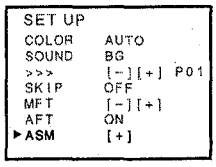


2 Press the MENU button repeatedly to call up the SET UP menu on the screen.

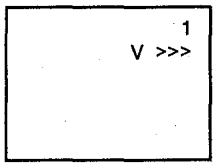


3 Confirm that "COLOR" is set to "AUTO" and "SOUND" is set to proper system.
If not, press the ▼/▲ buttons to move the cursor (▶) to "COLOR" or "SOUND" and press the ◿ −/+ buttons to select each proper system.

4 Press the ▼/▲ buttons to move the cursor (▶) to "ASM".



5 Press the ◿ "+" button to start the ASM. All active channels will be preset automatically.
When presetting is complete, the initial programme number will reappear.



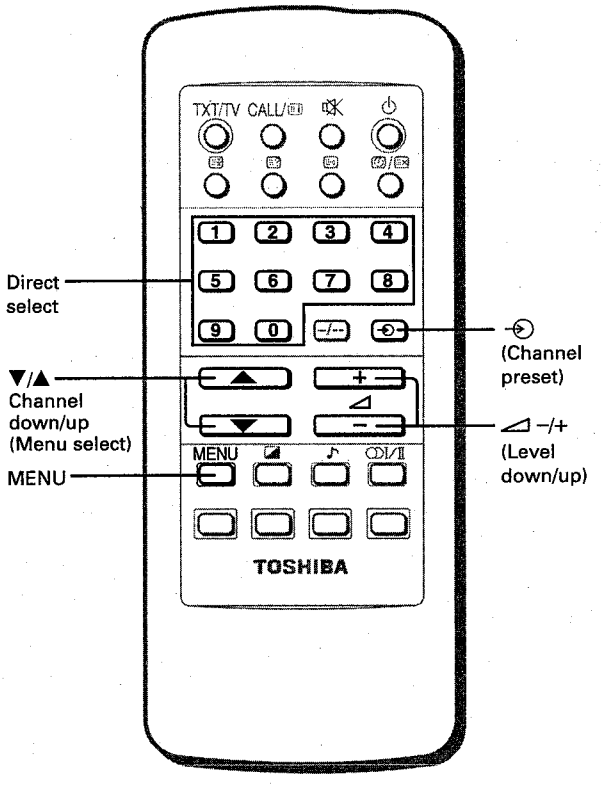
After presetting
Check the preset channels by pressing the channel down (▼)/up (▲) buttons.

- If the picture or sound of a certain channel is not good, fine-tune the channel using the MFT function. See page 11.
- If the colour of a certain channel is abnormal, automatic colour system selection (AUTO) may malfunction, or sound system selection is wrong. In such a case, select another colour and/or sound system.

Tuning in (continued)

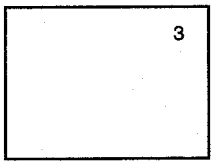
- Use the SEARCH function if desired channels cannot be preset with the ASM or if you would like to preset the desired channels to specific programme numbers one by one.
- The following describes how to tune in channels with the SEARCH (<<<) function using mainly the Remote Controller. You can also perform the SEARCH operation using the buttons on the TV set. See page 6.

To preset channels (Manual search)

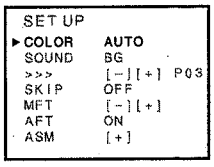


Manual search (>>>)

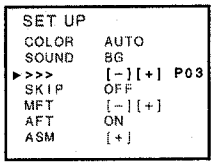
1 Select a programme number with the channel down (▼)/up (▲) or direct select buttons.



2 Press the MENU button repeatedly to call up the SET UP menu on the screen.

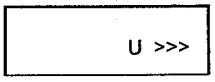


3 Press the ▼/▲ buttons to move the cursor (▶) to ">>>".

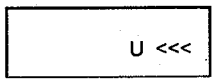


4 Press the -/+ buttons to start searching.
The − button searches for lower-numbered channels; the + button for higher-numbered channels.
Repeat this process until you can get the desired channel.

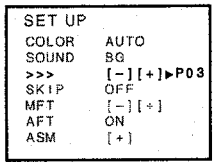
Ex. search up



Ex. search down

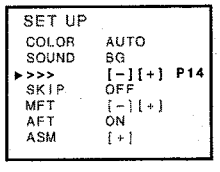


5 When the desired programme is shown, press the ⊕ (Channel preset) button to move the cursor (▶) to "P03". Then, press the -/+ buttons to set the programme number.



When you	-/+	Programme number
press once	+	increased by 1
	−	decreased by 1
hold down	+	increased by 10
	−	decreased by 10

6 When you press the ⊕ (Channel preset) button again, the channel is memorized at the current programme number.

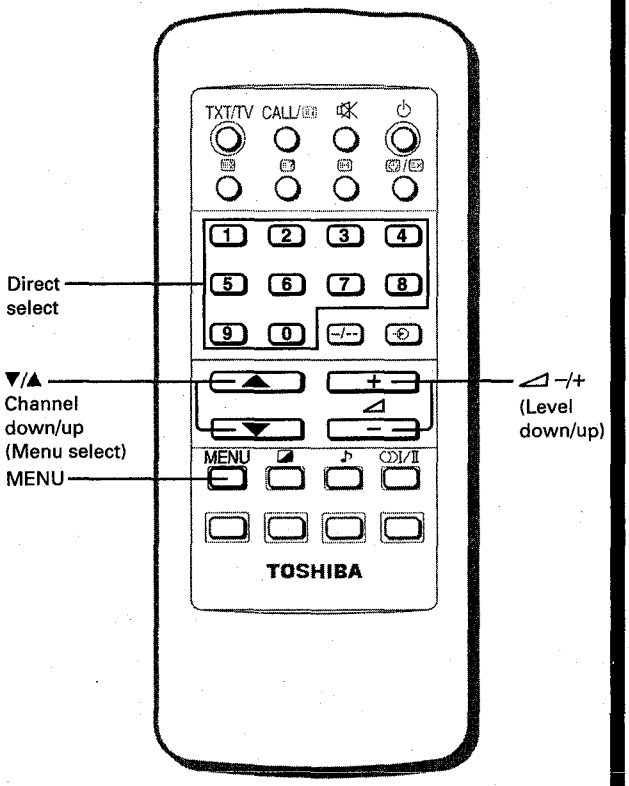


7 Repeat steps 3 through 6 to preset other channels.

- The AFT (Auto Fine Tuning) function automatically corrects slight fluctuations when receiving signals.
- The adjustments below are not necessary under normal conditions. However, in areas of inferior broadcast conditions where adjustment is necessary for a better picutre, adjust the tuning with the MFT (Manual Fine Tuning). The AFT OFF status automatically keeps the condition adjusted with the MFT function.

* Receiving frequencies may change due to aging.

AFT (Auto Fine Tuning) and MFT (Manual Fine Tuning)



AFT (Auto Fine Tuning)

1 Press the MENU button repeatedly to call up the SET UP menu on the screen.

```
SET UP
▸COLOR    AUTO
 SOUND    BG
 >>>      [−][+] P01
 SKIP     OFF
 MFT      [−][+]
 AFT      OFF
 ASM      [+]
```

2 Press the ▼/▲ buttons to move the cursor (►) to "AFT".

```
SET UP
 COLOR    AUTO
 SOUND    BG
 >>>      [−][+] P01
 SKIP     OFF
 MFT      [−][+]
▸AFT      OFF
 ASM      [+]
```

3 Press the ◿ −/+.
The displays "OFF" and "ON" appear alternately.
Select the "ON" indication.

```
SET UP
 COLOR    AUTO
 SOUND    BG
 >>>      [−][+] P01
 SKIP     OFF
 MFT      [−][+]
▸AFT      ON
 ASM      [+]
```

Note
When the channel is set to AFT OFF status, the "■ " mark appears to the left of the programme number.
When the channel is set to AFT ON status, the programme number is displayed without the "■ " mark.

```
■1
```

MFT (Manual Fine Tuning)

1 Select the programme number you want to fine-tune with the channel down (▼)/up (▲) buttons or direct select buttons.

```
1
```

2 Press the MENU button repeatedly to call up the SET UP menu on the screen.

```
SET UP
▸COLOR    AUTO
 SOUND    BG
 >>>      [−][+] P01
 SKIP     OFF
 MFT      [−][+]
 AFT      ON
 ASM      [+]
```

3 Press the ▼/▲ buttons to move the cursor (►) to "MFT".

```
SET UP
 COLOR    AUTO
 SOUND    BG
 >>>      [−][+] P01
 SKIP     OFF
▸MFT      [−][+]
 AFT      ON
 ASM      [+]
```

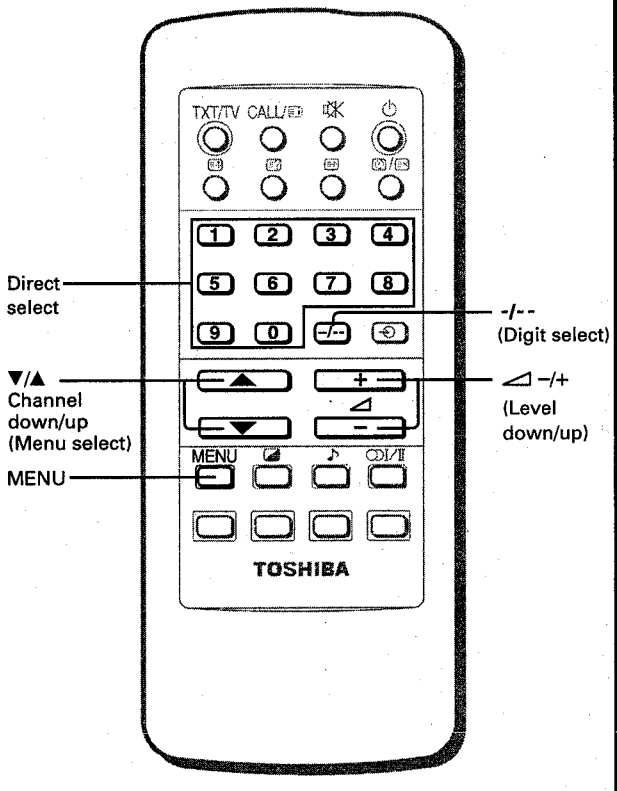
4 Press the ◿ −/+ buttons until the best possible picture and sound are obtained.

Note
When operating the MFT function, the AFT status is automatically set to OFF.

Tuning in (continued)

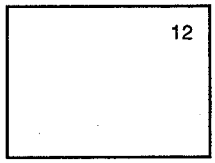
To skip unnecessary programme numbers

After presetting the channels, you may skip unnecessary programme numbers so that only the channels you want to watch are selected.

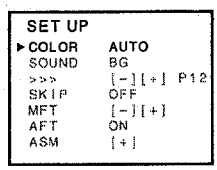


To skip a programme number

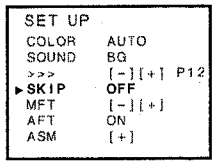
1 Select the programme number to be skipped with the channel down (▼)/up (▲) buttons or direct select buttons.



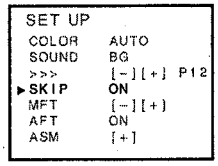
2 Press the MENU button repeatedly to call up the SET UP menu on the screen.



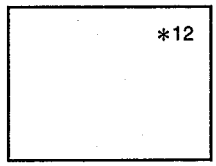
3 Press the ▼/▲ buttons to move the cursor (►) to "SKIP".



4 Press the ◿ -/+ buttons to select "SKIP ON".



5 Press the MENU button to turn off the SET UP menu display.
Select the programme number to be skipped with the direct select buttons. The * mark appears to the left of the programme number.
The programme number will then be skipped when you select the programme with the channel down (▼)/up (▲) buttons.



To restore a skipped programme number

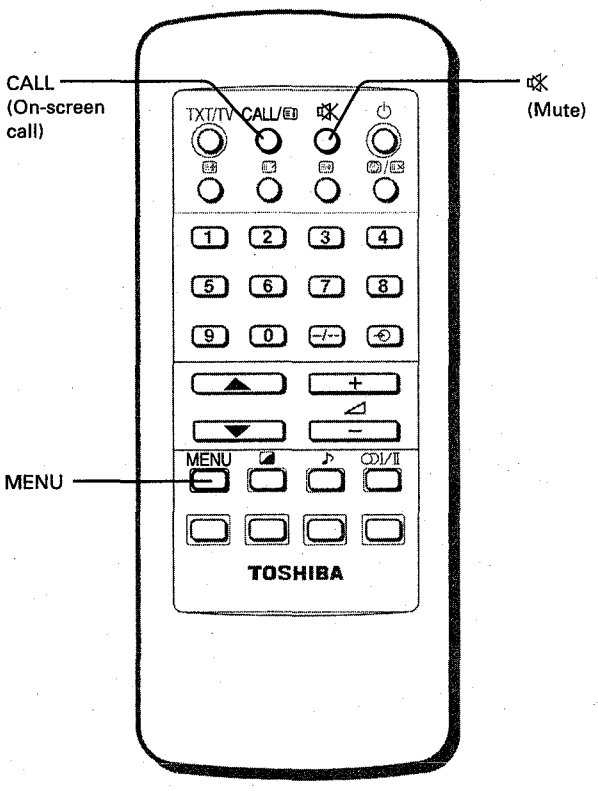
1 Select the programme number you want to restore with the direct select (and/or digit select) buttons.

2 Press the MENU button to call up the SET UP menu display and press the ▼/▲ buttons to move the cursor (►) to "SKIP".

3 Press the ◿ -/+ buttons to select "SKIP OFF".

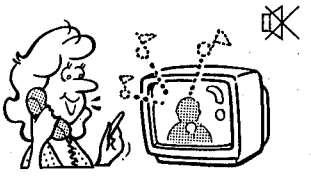
Convenient Sound and Picture Controls

Sound muting and on-screen calling

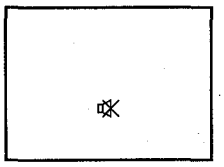


To mute the sound

The muting function is convenient when you need to pay attention to surrounding sounds, answer a phone call, receive a visitor, etc.



1 Press the 🔇 button.



2 To restore the sound, press the 🔇 button again.

To retain the on-screen display

Generally, the programme number will disappear within 5 seconds once the programme number has been changed.

1 To retain the programme number on the screen, press the CALL button.

2 To return to the automatic-disappearing mode, press the CALL button again.

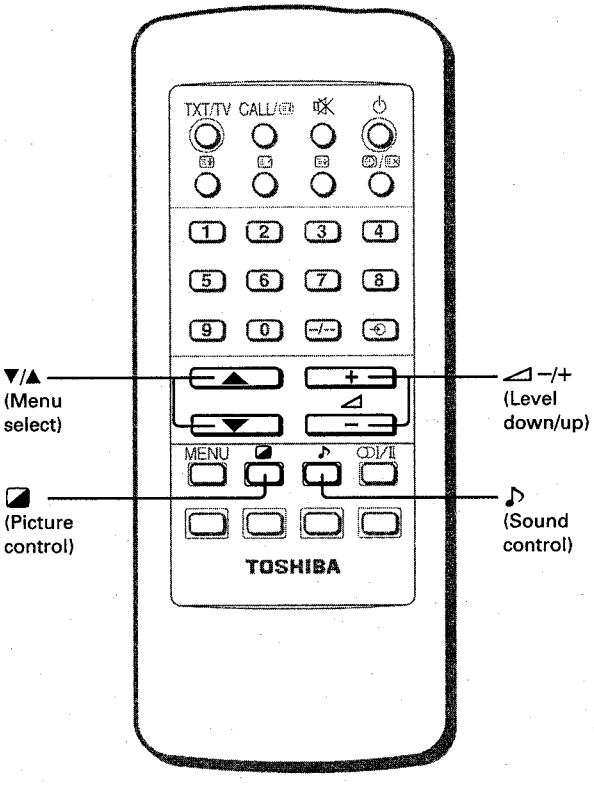
To turn off the menu function display instantly

Generally, the menu function display (FUNCTION, LANGUAGE, SET UP) is retained by pressing the MENU button once.
To turn off the display instantly, press the CALL button.

Convenient Sound and Picture Controls (continued)

- The following describes how to operate using mainly the Remote Controller. You can also perform this operation using the buttons on the TV set. See page 6.

Selectable sound and picture

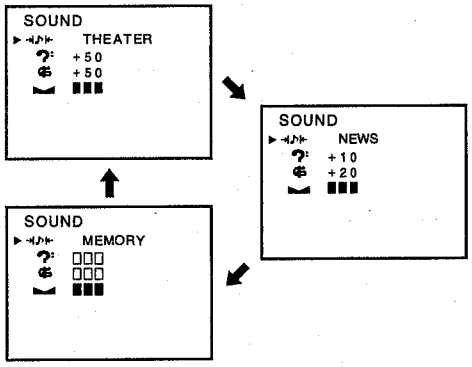


To select the sound mode

Press the ♪ button to call up the SOUND quality selection menu on the screen and press the ▼/▲ buttons to move the cursor (▶) to →♪←. Then, press the ◿ −/+ buttons to select the desired sound quality from the three modes.

Mode	Sound quality
→♪← THEATER	suitable for music and movie
→♪← NEWS	emphasizes human voice
→♪← MEMORY	the sound quality you set

The three modes can be selected cyclically as follows.



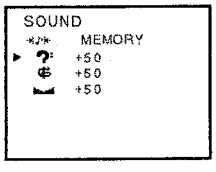
■■■: Adjustable common item to the three modes
−50 ~ +50

□□□: Adjustable item to the MEMORY mode
−50 ~ +50

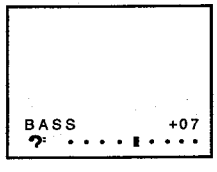
To set the desired sound quality to the MEMORY mode

If you adjust either of items: ?, ⇆ in the THEATER or NEWS modes, the TV will automatically change to the MEMORY mode.

1 Press the ▼/▲ buttons to move the cursor (▶) to the desired adjusting item.



2 Press the ◿ −/+ buttons to adjust the level. The adjusted level is stored in the MEMORY mode.



Selectable sound and picture (continued)

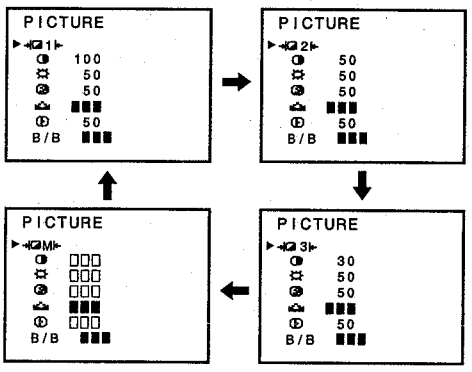
Item		Pressing	
		–	+
	bass	weaker	stronger
	treble	weaker	stronger
	balance	decreases the right speaker	decreases the left speaker

To select the picture mode

Press the ◪ button to call up the PICTURE quality selection menu on the screen and press the ▼/▲ buttons to move the curson (▶) to →|◪✻|←.
Then, press the ◿ –/+ buttons to select the desired picture quality from the four modes.

Mode	Picture quality
→|◪1|←	bright and dynamic picture
→|◪2|←	standard picture
→|◪3|←	soft and moody picture
→|◪M|←	the picture quality you set

The four modes can be selected cyclically as follows.



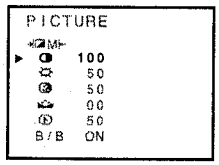
■■■ : Adjustable common item to the four modes
–50 ~ +50 or OFF/ON

□□□ : Adjustable item to the MEMORY mode
00 ~ 100

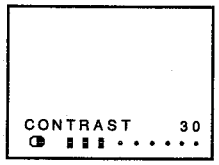
To set the desired picture quality to the MEMORY mode

If you adjust any one of items: ◑, ☼, ◍, ◧ in the →|◪1|←, →|◪2|← or →|◪3|← modes, the TV will automatically change to the MEMORY mode.

1 Press the ▼/▲ buttons to move the cursor (▶) to the desired adjusting item.



2 Press the ◿ –/+ buttons to adjust the level. The adjusted level is stored in the MEMORY mode.

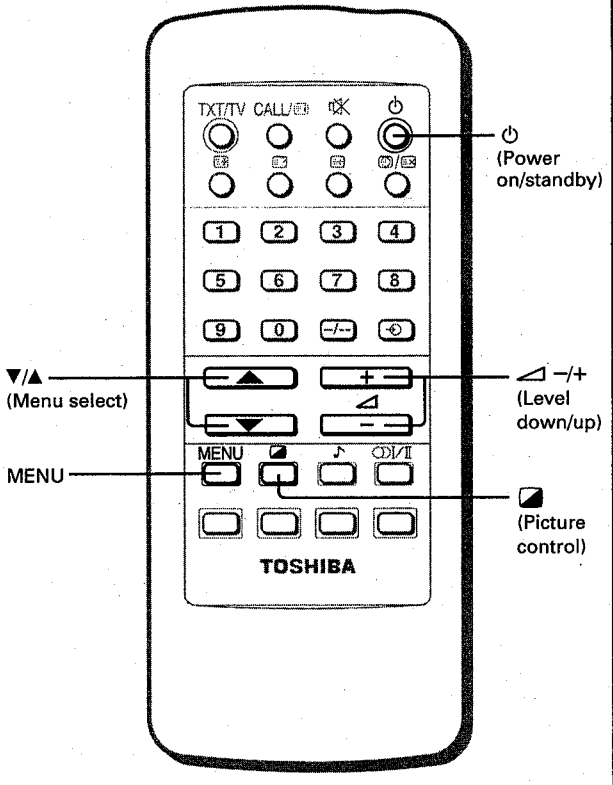


Item		Pressing	
		–	+
◑	CONTRAST	weaker	stronger
☼	BRIGHTNESS	darker	lighter
◍	COLOUR	paler	deeper
	TINT *	purplish	greenish
◧	SHARPNESS	softer	sharper
B/B	SCREEN BLUE	OFF/ON	OFF/ON

* for NTSC only

Using Other Menus

Blue background and OFF timer

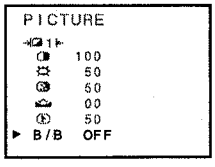


Note
The maximum presettable time for the OFF timer is 12:59.

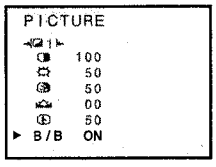
To turn the screen blue

With the blue background function ON, the TV will automatically turn blue when no signal is being received.

1 Press the ◪ button and press the ▼/▲ buttons to move the cursor (►) to "B/B".



2 Press the ◿ −/+ buttons to select "ON".



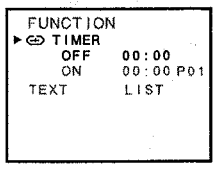
To turn off the blue background

Repeat steps 1 and 2 above and select B/B OFF.

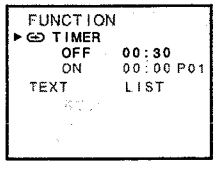
To turn off the TV automatically (OFF timer)

With the OFF timer, the TV will automatically switch to standby mode at a preset time.

1 Press the MENU button repeatedly to call up the FUNCTION menu on the screen. Then, press the ▼/▲ buttons to move the cursor (►) to "⏲ TIMER" and press the ▼/▲ buttons to select "OFF".



2 Press the ◿ −/+ buttons to set after how many hours and minutes you want the TV to switch into the standby mode.

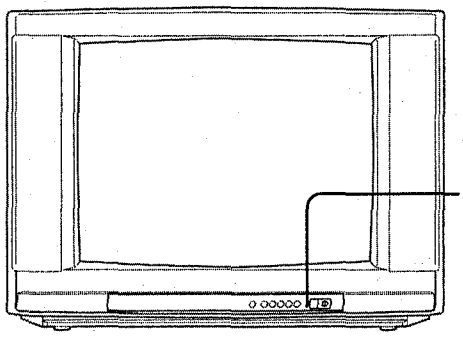


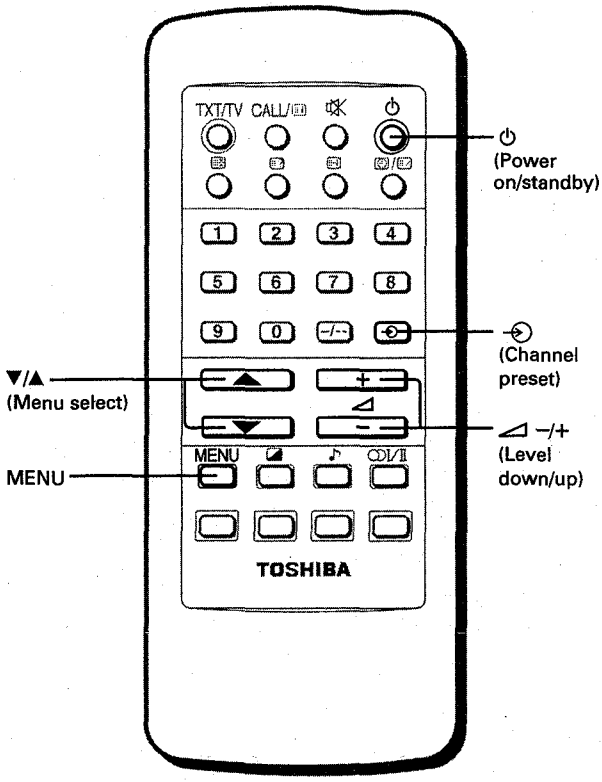
When you	◿ −/+	Setting time is
press once	+	increased by 1 minute
	−	decreased by 1 minute
hold down	+	increased by 30 minutes
	−	decreased by 30 minutes

To cancel the OFF timer

Press the ⏻ button twice (to turn off the TV once and turn it on again) or in step 2 above set the OFF time to 00:00.

ON timer





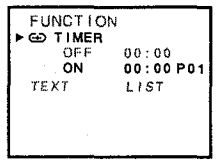
Note

The maximum presettable timer for the ON timer is 12:59.
The maximum presettable programme channel number for the ON timer is P59.

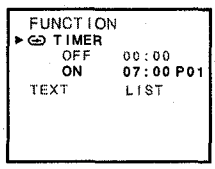
To turn on the TV automatically (ON timer)

With the ON timer, the TV will automatically turn on to a preset channel at a preset time.

1 Press the MENU button repeatedly to call up the FUNCTION menu on the screen. Then, press the ▼/▲ buttons to move the cursor (▶) to "⇔ TIMER" and press the ▼/▲ buttons to select "ON".

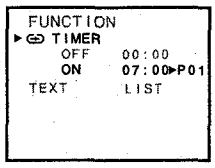


2 Press the ◿ −/+ buttons to set after how many hours and minutes you want the TV to turn on.
The colour of the ⏲ ON-timer indicator will change from red to green.



When you	◿ −/+	Setting time is
press once	+	increased by 1 minute
	−	decreased by 1 minute
hold down	+	increased by 30 minutes
	−	decreased by 30 minutes

3 Press the ⊖ button to move the cursor (▶) to "P**".
Then, press the ◿ −/+ buttons to set the programme channel number.



When you	◿ −/+	Setting programme channel number is
press once	+	increased by 1
	−	decreased by 1
hold down	+	increased by 10
	−	decreased by 10

4 Press the ⏻ button to switch the TV to standby mode. The green ON-TIMER indicator lights up on the front.
At the preset time, the TV will turn on automatically.

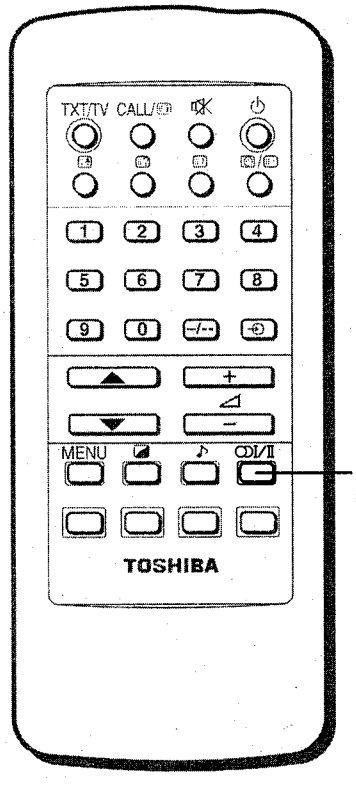
To cancel the ON timer

Press the power switch to turn off the TV or in steps 2 and 3 above set the ON time to 00:00.

Enjoying Stereo and Bilingual Broadcasts

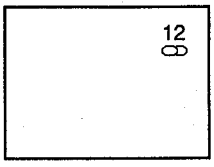
- The unit receives both stereo and bilingual broadcasts transmitted in either the NICAM or German stereo/bilingual broadcast system.

To select the stereo/bilingual mode

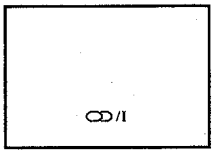


Stereo programmes

1 When a stereo programme is received, appears.



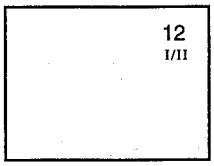
2 Press the / button to select the stereo/monaural mode. /I, /II and appear cyclically on the screen.



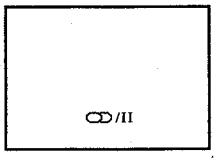
Display	Reception mode
/I	Stereo
/II	Stereo
	Monaural

Bilingual programmes

1 When a bilingual programme is received, I / II appears.



2 Press the / button to select the sound to be heard. The sound differs according to the transmission system: NICAM or German stereo/ bilingual broadcast. /I, /II and appear cyclically on the screen.



Display	Sound to be heard	
	NICAM	German stereo/ bilingual broadcast
/I	Sub I sound	Main sound
/II	Sub II sound	Sub sound
	Main sound	Main sound

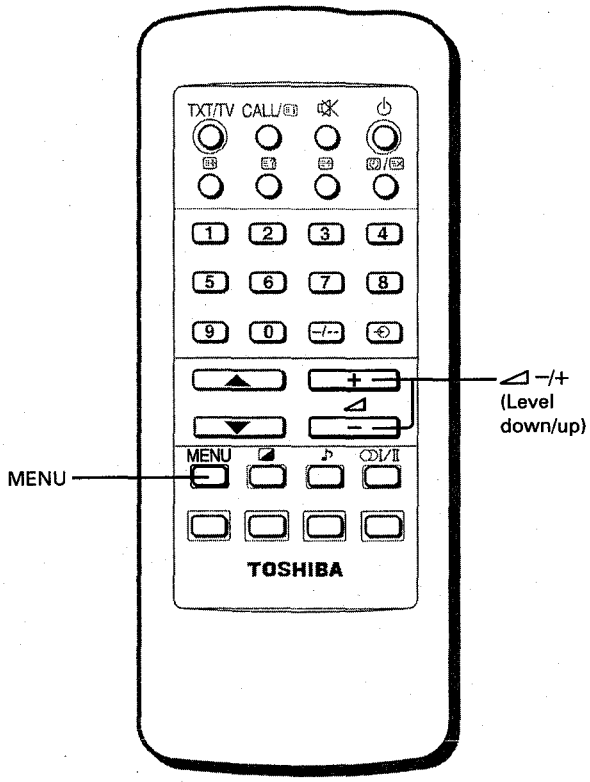
If stereo sound is noisy

If a broadcasting signal is not strong enough and noise-free stereo sound is not available, press the / button until the indicator appears on the screen (monaural mode). The noise should be reduced.

Selecting the Language for the OSD (On-Screen Display)

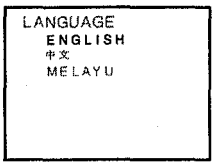
To select the language for the OSD

Use this function to switch the language for the OSD to either English, Mandarin or Malay.

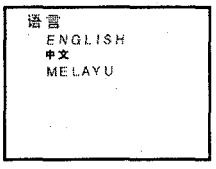


To select the language for the OSD

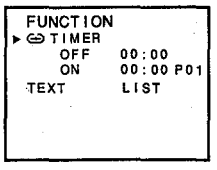
1 Press the MENU button repeatedly to call up the LANGUAGE selection menu on the screen.



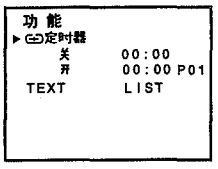
2 Press the ◿ –/+ buttons to select the desired language.
The selected language is displayed in magenta and the screen menu is automatically displayed in that language.



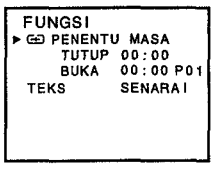
Ex. English display



Ex. Mandarin display



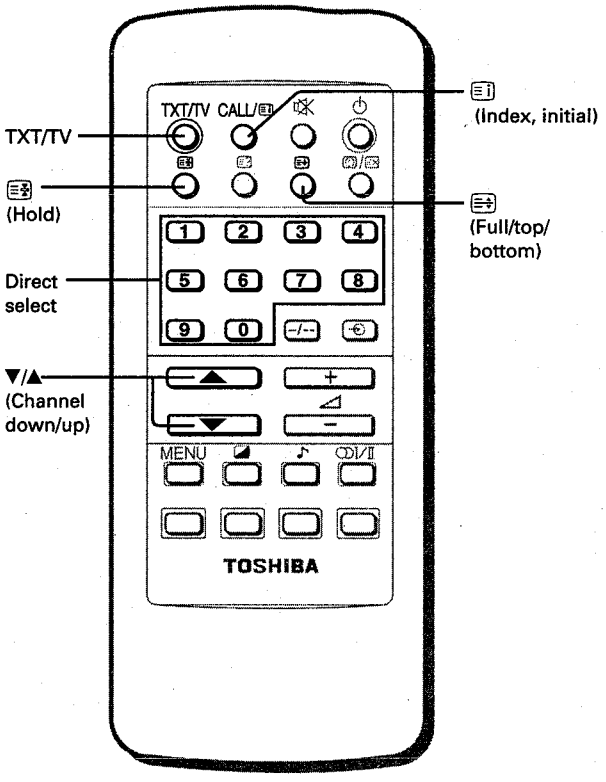
Ex. Malay display



Viewing Normal Text/Use of the Teletext Buttons

- The TV is capable of showing both normal text and Fastext information on the screen. The Teletext buttons on the Remote Controller have the same function for both.

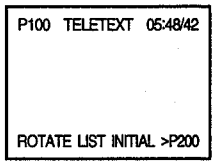
To view normal text



To display a page of text

1 Select a TV station with the text service desired.

2 Press the TXT/TV button. The index page will appear.



3 Enter the 3-digit page number using the direct select buttons.
Ex. Page 110: Press 1, 1 and 0.

To go to the previous or next page

Press the channel down ▼ button to switch to the previous page. Press the channel up ▲ button to switch to the next page. The pages will cyclically change from P*00 to P*99.

To return to the normal TV mode

Press the TXT/TV button repeatedly until the text disappears.

To display an index/initial page (⊟)

Press the ⊟ button. The index page (FAST mode) or the preset initial page (LIST mode) will appear.
For presetting an initial page, see page 23.

To enlarge the text display size (⊟)

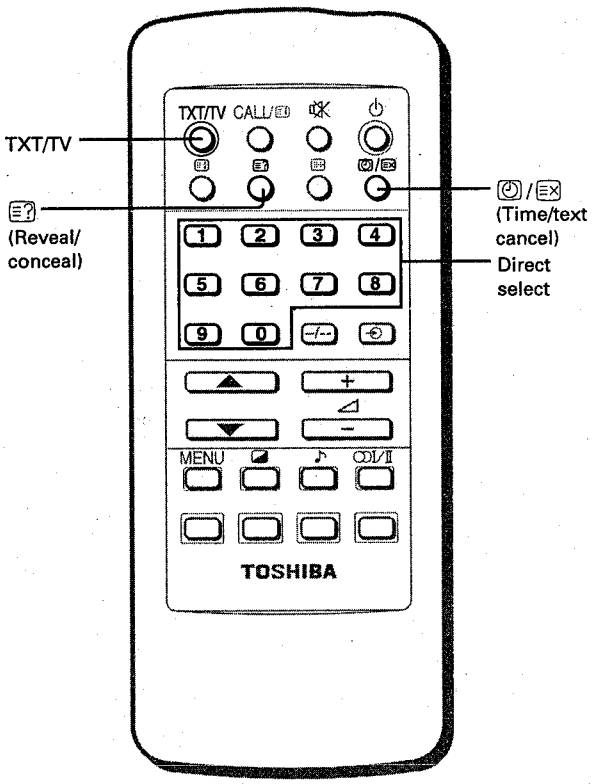
Press the ⊟ button once to enlarge the top half of the page. Press again to enlarge the bottom half of the page, and again to return to the normal size.

To hold a page of text (⊟)

When a page is divided into sub pages, it is convenient to hold a given page.
Press the ⊟ button to hold the page. HOLD will appear in the top left of the screen. Press again to release the hold mode.

Viewing Normal Text/Use of the Teletext Buttons (continued)

To view normal text (continued)



To select a page while viewing a normal TV picture (/)

If you press the / button in the text mode, a normal TV picture will be displayed. Enter the desired 3-digit page number using the direct select buttons, and the selected number will appear on the screen.
To view the selected page, press the TXT/TV button.

To display news flashes (/)

To view news flashes when they are broadcast, select the news flash page for the particular Teletext service (see the Teletext index page) and press the / button. The news flashes will be displayed as they are broadcast. Press again to cancel the news flash display.

Note
The TV channel cannot be changed when the news flash is displayed. To change the channel, first press the TXT/TV button to cancel the text mode.

To reveal concealed text ( )

Some pages have sections that are concealed such as the answers to quizzes and the punchlines of jokes. To see the concealed part, press the button. Press again to conceal.

To display the time (/)

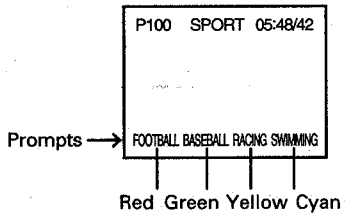
To display the accurate time on the screen while watching a normal TV picture, press the / button. Each time you press the button, the time is displayed for 4 seconds.

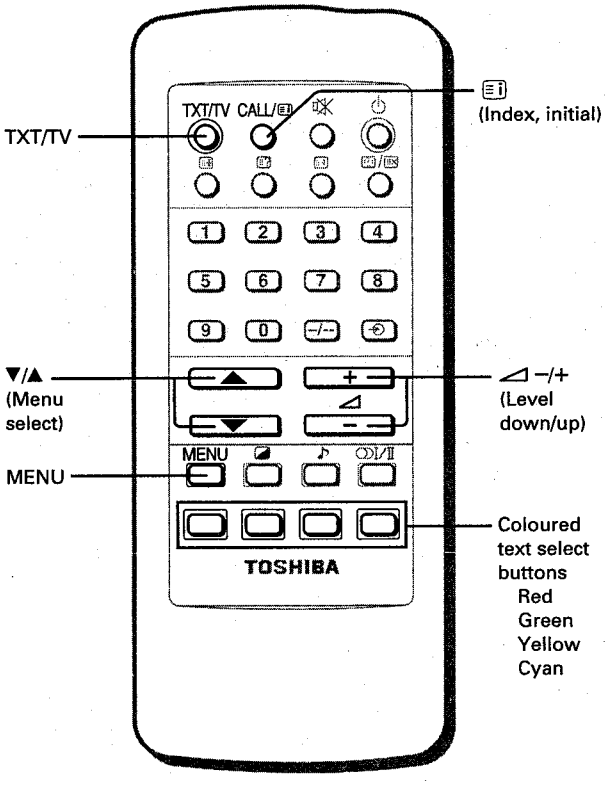
Viewing Fastext

- Fastext is a method of viewing Teletext pages by related subjects grouped by the broadcast studio. You can access any given topic shown on the screen simply by pressing the corresponding coloured text select button on the Remote Controller.

To view Fastext

When you select the FAST mode, four coloured prompts will appear at the bottom of the screen. The colours correspond to those of the text select buttons on the Remote Controller. So, press the corresponding coloured text select button to go to the desired topic page instantly.

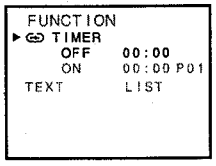




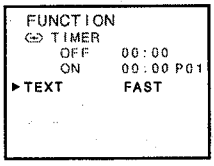
To select the FAST mode

1 Select a TV station with the desired FASTEXT service.

2 Press the MENU button repeatedly to call up the FUNCTION menu on the right.

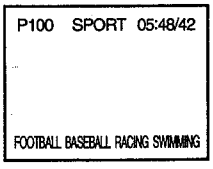


3 Press the ▼/▲ buttons to move the cursor (▶) to "TEXT".
Then, press the ◿ −/+ buttons to select "FAST" (Fastext mode).

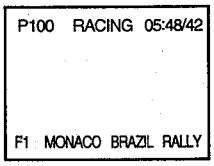


To view Fastext

1 Press the TXT/TV button to select the text mode.
Four coloured prompts will appear at the bottom of the screen.



2 Press the text select button whose colour corresponds to your desired topic.
The screen will switch to the selected page.



3 Repeat step 2 to switch to the next topic you want to view.

To return to the normal TV mode

Press the TXT/TV button twice.

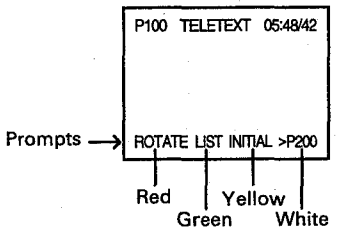
Press the [i] button to display an index page. (See page 20.)

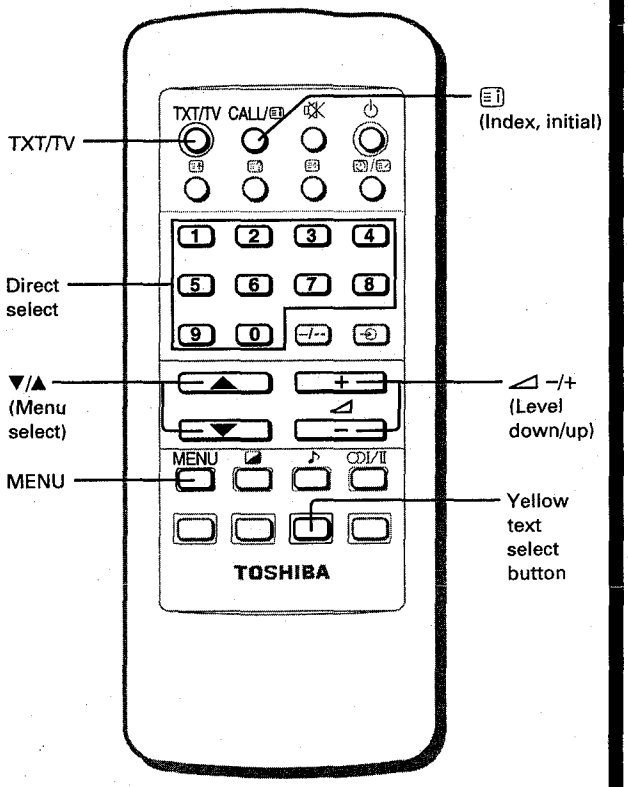
Viewing Preset Text Pages in the LIST Mode

- You can preset up to four of the most frequently used text pages and select these pages easily. In addition to the four pages, you can preset an initial page which will appear first each time you select the text mode.

To preset and view the text pages in the LIST mode

Presetting is possible only for programme numbers 1 through 9.

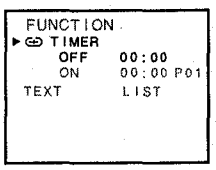




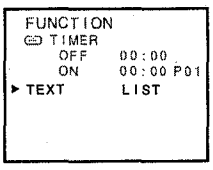
To select the LIST mode

1 Select a TV station with the text service desired.

2 Press the MENU button *repeatedly to call up the* FUNCTION menu on the right.

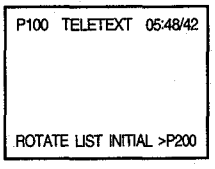


3 Press the ▼/▲ buttons to move the cursor (▶) to "TEXT".
Then, press the ◿ −/+ buttons to select "LIST" (LIST mode).

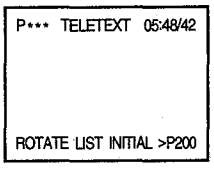


To preset an initial page

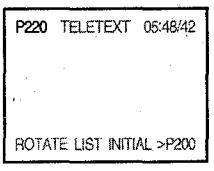
1 Press the TXT/TV button to select the text mode.
The display on the right will appear.



2 Press the **yellow** text select button.
P*** in red will appear on the screen.



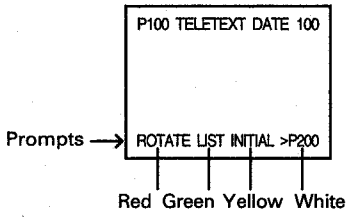
3 Press the direct select buttons to enter the 3-digit page number that you want to preset as an initial page.
Ex. page 220 :
Press 2, 2 and 0.

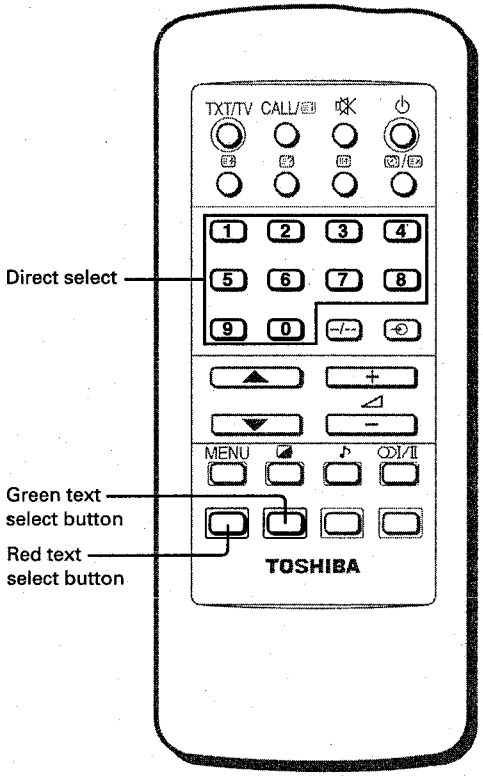


The selected page will turn to white and will be stored in memory.

Note
For programme numbers 10 and higher, the initial page is fixed to 100, and the LIST function does not operate. Press the [i] button to display an initial page. (See page 23.)

To preset and view the text pages in the LIST mode (continued)





To preset desired pages

1 Press the **green** text select button.

The page number at the right bottom will turn to purple.

P100 TELETEXT 05:48/42

ROTATE LIST INITIAL >P200

2 Enter the 3-digit page number you want to preset by using the direct select buttons, and press the **green** text select button. The selected page will be stored in memory.

P100 TELETEXT 05:48/42

ROTATE LIST INITIAL >P220

3 Repeat steps 1 and 2 to preset other three pages.

To view the preset pages

Press the **red** text select button.

By pressing the red text select button, the preset pages will appear cyclically.

P100 TELETEXT 05:48/42

ROTATE LIST INITIAL >P220

Note

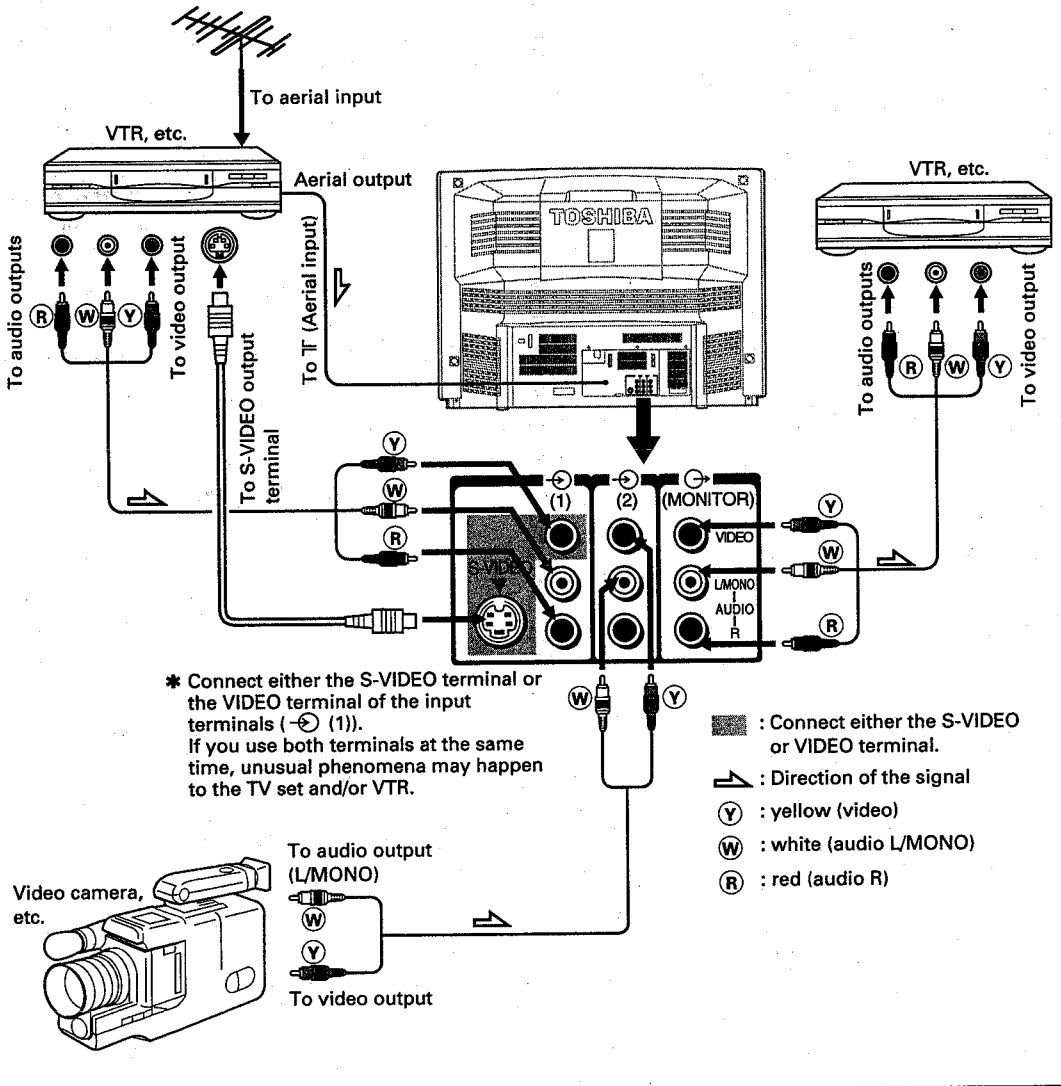
For programme numbers 10 and higher, pages 100, 200, 300 and 400 are always selected in the LIST mode. You cannot change the presetting.

External Equipment Connections

- The following describes how to use and connect the TV with other AV equipment. Refer to the owner's manual of the equipment to be connected as well.

To connect video equipment

You can connect video equipment such as a VTR and video camera to this TV and enjoy the high quality picture.



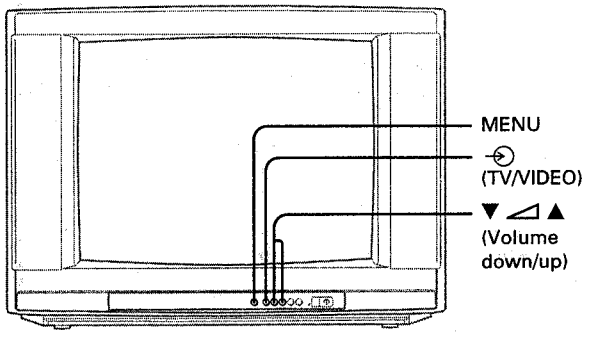
- The output terminals of the TV set (→ MONITOR) output the video and audio signals being broadcast or input signal from input terminals (→ (1) or (→ 2)). You can record a TV programme or video playback by connecting a VTR from the output terminals (→ MONITOR) to the input terminals of the VTR.
- You can play back the tape by connecting another VTR (or video camera, etc.) from the output terminals of the VTR to the input terminals.

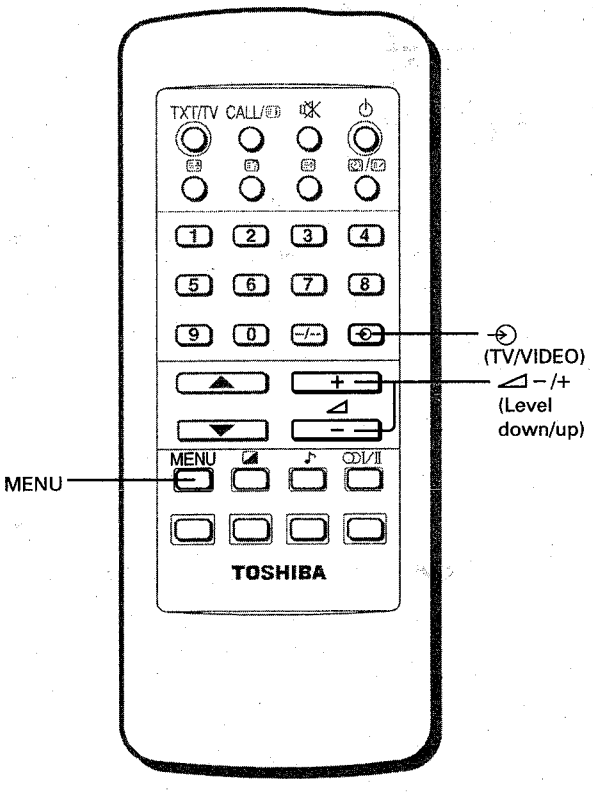
Note

- If you use only one VTR for recording and playback, unusual phenomena may happen to the TV set and/or VTR.

To select the video input

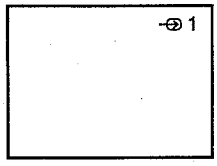
To view the picture from the connected equipment, you should select the video input to which the equipment is connected.





To select the video input

Press the ⊖ TV/VIDEO button. The "⊖" mark and programme number appear cyclically.

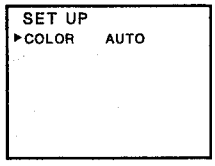


Input indicator	Input terminal to be selected
⊖ 1	⊖ (1) video input
⊖ 2	⊖ (2) video input
Programme number	aerial input

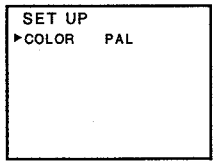
If the colour of video input is abnormal

The colour system setting may be incorrect.

1 Press the MENU button repeatedly until you see the display on the right.



2 Press the – /+ buttons to select the correct colour system. "AUTO", "PAL", "SECAM", "443NTSC" and "358NTSC" appear cyclically.



A Guide to Simple Problem Solving

- Before calling service personnel, please check the following chart for a possible cause to the trouble you are experiencing.

Symptom	Check these things
Power is not turned on.	• Be sure the power cord is plugged in.
Abnormal colour/sound	• Be sure the colour system and the sound system are correct. (Refer to the table below.)
Poor colour/tint	• May be the misadjustment for contrast, colour and tint. • If you change the direction of the TV while the TV is activated, the picture may suffer from colour shading. If so, turn off the TV and allow for about 30 minutes to cool, then turn on the TV again. The picture should improve.
Spots appear on the screen.	• May be jamming from cars, motorcycles, electric trains, high tension lines, neon signs, hair dryers, etc.
Lines appear on the screen.	• May be jamming from other TV receivers, personal computers, and TV games, as well as interference from radio station.
Double or triple images	• May be due to broadcast waves reflected from mountains or buildings. • Check if the direction of the aerial has changed because of strong wind, etc.
Snowy picture	• The aerial lead-in may be broken or disconnected. • Check if the direction of the aerial has changed.
Remote Controller does not work.	• The batteries in the Remote Controller may be exhausted. • The batteries may be improperly installed. • Check that there is no obstruction between the Remote Controller and the remote (infrared) sensor. • Check that a strong light is shining on the remote (infrared) sensor. • Check that the main power is not turned off.

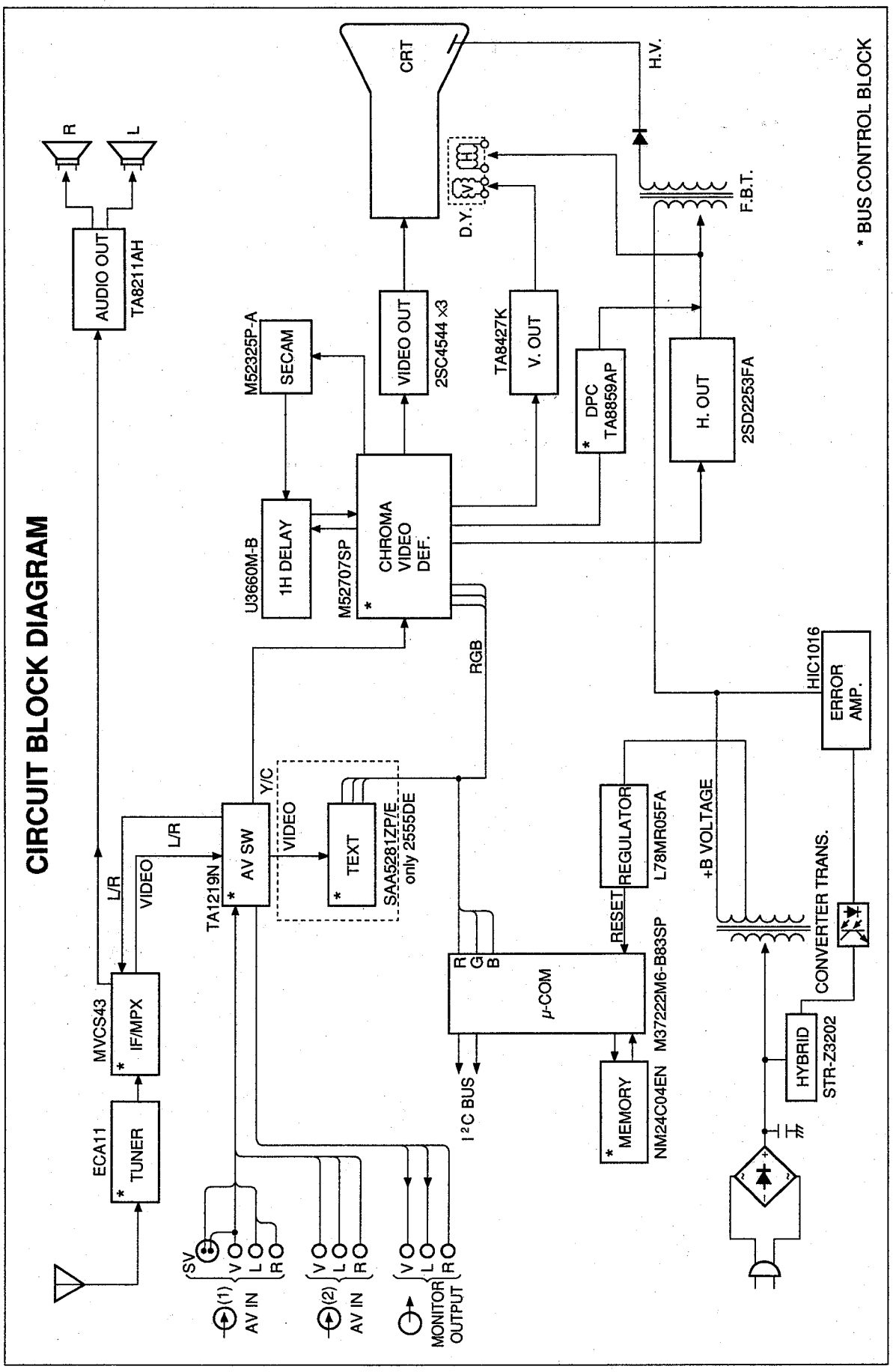
The following are not failures

The cabinet clicks.	• The clicking is a creaking sound produced when the cabinet expands or contracts due to changes in the temperature. This will not affect the picture or sound.
Unevenness in colour sometimes develops in part of the screen.	• If the screen is set brightly, such unevenness in colour may occur depending upon the nature of the picture. The proper colour can be restored by reducing the contrast. Consult your local dealer.

Broadcast Transmission Systems in Each Country

Area	Country	System	
		Colour	Sound
Asia M. E.	Bahrain, Kuwait, Israel, Oman, Qatar, United Arab Emirates, Yemen, etc. Indonesia, Malaysia, Singapore, Thailand, etc.	PAL	B/G
	China, etc.	PAL	D/K
	Hong Kong	PAL	I
	Iraq, Islamic Republic of Iran, Lebanon, Saudi Arabia, etc.	SECAM	B/G
	Russian Federation, etc.	SECAM	D/K
	Myanmar, etc.	NTSC	M
Oceania	Australia, New Zealand, etc.	PAL	B/G
Africa	Republic of South Africa, etc.	PAL	I
South America	Argentina, Paraguay, Uruguay, etc.	PAL	N
	Brazil	PAL	M
	Chile, Colombia, etc.	NTSC	M

Note: "B/G" and "D/K" will be displayed as "BG" and "DK" on the screen. PAL, SECAM and 358NTSC are different colour signal broadcast transmission systems applicable to different countries. 443NTSC is used in special VTRs to playback NTSC recorded video tapes through PAL television equipment.
[358NTSC = NTSC 3.58 MHz, 443NTSC = NTSC 4.43 MHz]


CIRCUIT BLOCK DIAGRAM
* BUS CONTROL BLOCK
R
L
AUDIO OUT
TA8211AH
CRT
H.V.
D.Y.
F.B.T.
M52325P-A
SECAM
VIDEO OUT
2SC4544 ×3
TA8427K
V. OUT
DPC
TA8859AP
H. OUT
2SD2253FA
U3660M-B
1H DELAY
M52707SP
CHROMA
VIDEO
DEF.
RGB
Y/C
VIDEO
TEXT
SAA5281ZP/E
only 2555DE
TA1219N
AV SW
L/R
VIDEO
L/R
MVCS43
IF/MPX
ECA11
TUNER
SV
(1)
AV IN
(2)
AV IN
MONITOR
OUTPUT
V
L
R
I²C BUS
R
G
B
μ-COM
RESET
REGULATOR
L78MR05FA
MEMORY
NM24C04EN
M37222M6-B83SP
+B VOLTAGE
HIC1016
ERROR
AMP.
CONVERTER TRANS.
HYBRID
STR-Z3202

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 2 OF THIS MANUAL.

INSTALLATION AND SERVICE ADJUSTMENTS

GENERAL INFORMATIONS

All adjustments are thoroughly checked and corrected when the receiver leaves the factory. Therefore the receiver should operate normally and produce proper colour and B/W pictures upon installation. However, several minor adjustments may be required depending on the particular location in which the receiver is operated.
This receiver is shipped completely in cardboard carton. Carefully draw out the receiver from the carton and remove all packing materials. Plug the power cord into a convenient 240 volts 50 Hz AC two pin power outlet. Turn the receiver ON. Check and adjust all the customer controls such as BRIGHTNESS, CONTRAST and COLOUR Controls to obtain natural colour or B/W picture.

AUTOMATIC DEGAUSSING

A degaussing coil is mounted around the picture tube so that external degaussing after moving the receiver is normally unnecessary, providing the receiver is properly degaussed upon installation. The degaussing coil operates for about 1 second after the power to the receiver is switched ON. If the set is moved or faced in a different direction, the power switch must be switched off at least 30 minutes in order that the automatic degaussing circuit operates properly. Should the chassis or parts of the cabinet become magnetized to cause poor colour purity, use an external degaussing coil. Slowly move the degaussing coil around the faceplate of the picture tube, the sides and front of the receiver and slowly withdraw the coil to a distance of about 2 m before disconnecting it from AC source. If colour shading still persists, perform the COLOUR PURITY ADJUSTMENT and CONVERGENCE ADJUSTMENTS procedures.

HIGH VOLTAGE CHECK

CAUTION: There is no HIGH VOLTAGE ADJUSTMENT on this chassis.

1. Connect an accurate high voltage meter to the second anode of the picture tube.
2. Turn on the receiver. Set the BRIGHTNESS and CONTRAST Controls to minimum (zero beam current).
3. High voltage will be measured below 32.0 kV.
4. Rotate the BRIGHTNESS Control to both extremes to be sure the high voltage does not exceed the limit of 32.0 kV under any conditions.

HORIZONTAL CENTRE ADJUSTMENT

1. Receive the UK PHILIPS pattern.
2. Adjust HPOS (Bus control) so the pattern centre can be located at the screen centre.

FOCUS ADJUSTMENT

Adjust FOCUS Control on FLYBACK TRANS. (T461) for well defined scanning lines in the centre area on the screen.,

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUSTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 2 OF THIS MANUAL.

SET-UP ADJUSTMENT

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
  Perform the adjustments in order as follows :
  1. Color Purity
  2. Convergence
  3. White Balance (See page 40.)

  Note: The PURITY/CONVERGENCE MAGNET assembly and rubber wedges need mechanical positioning. Refer to figure 2.

COLOR PURITY ADJUSTMENT

NOTE : Before attempting any purity adjustments, the receiver should be operated for at least fifteen minutes.

1. Demagnetize the picture tube and cabinet using a degaussing coil.
2. Set the brightness and contrast to maximum.
3. Use a green raster from among the built-in test signals. See page 38.
4. Loosen the clamp screw holding the yoke and slide the yoke backward or forward to provide vertical green belt (zone) in the picture screen.
5. Remove the Rubber Wedges.
6. Rotate and spread the tabs of the purity magnet (See figure 3.) around the neck of the picture tube until the green belt is in the center of the screen. At the same time, enter the raster vertically.
7. Slowly move the yoke forward or backward until a uniform green screen is obtained. Tighten the clamp screw of the yoke temporarily.
8. Check the purity of the red and blue raster.

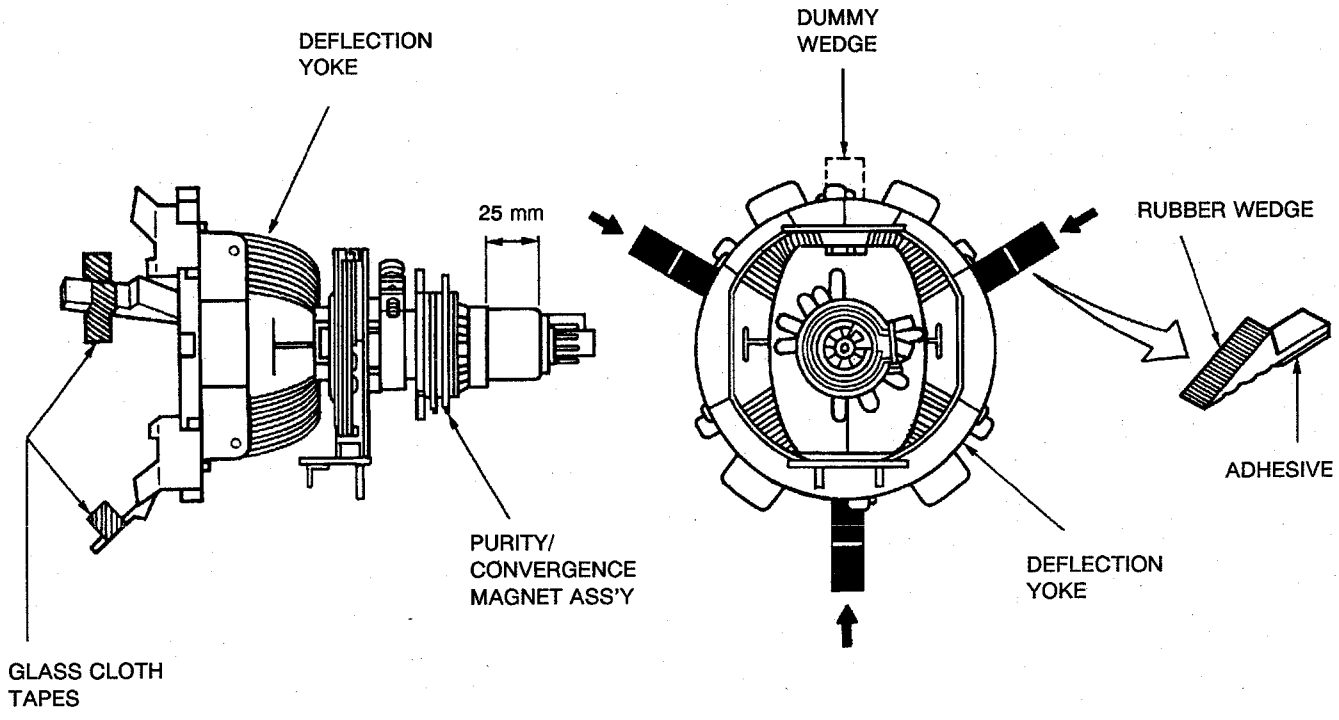


Figure 2.

CONVERGENCE ADJUSTMENTS

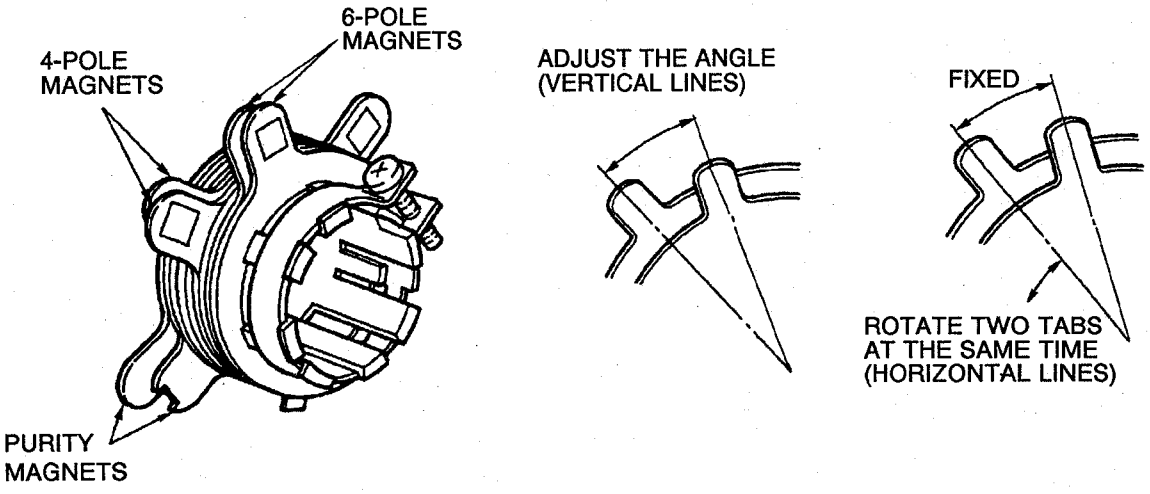
NOTE: Before attempting any convergence adjustments, the receiver should be operated for at least fifteen minutes.

■ CENTER CONVERGENCE ADJUSTMENT

1. Use the cross-dot pattern from among the built-in test signals. See page 38.
2. Set the brightness and contrast for well defined pattern.
3. Adjust two tabs of the 4-Pole Magnets to change the angle between them (See figure 3.) and superimpose red and blue vertical lines in the center area of the picture screen.
4. Turn the both tabs at the same time keeping the angle constant to superimpose red and blue horizontal lines at the center of the screen.
5. Adjust two tabs of 6-Pole Magnets to superimpose red/blue line and green one. Adjusting the angle affects the vertical lines and rotating both magnets affects the horizontal lines.
6. Repeat adjustments 3, 4, 5 keeping in mind red, green and blue movement, because 4-Pole Magnets and 6-Pole Magnets have mutual interaction and make dot movement complex.

■ CIRCUMFERENCE CONVERGENCE ADJUSTMENT

1. Loosen the clamping screw of deflection yoke slightly to allow the yoke to tilt.
2. Temporarily put a wedge as shown in figure 2. (Do not remove cover paper on adhesive part of the wedge.)
3. Tilt front of the deflection yoke up or down to obtain better convergence in circumference. (See figure 4.) Push the mounted wedge into the space between picture tube and the yoke to fix the yoke temporarily.
4. Put other wedge into bottom space and remove the cover paper to stick.
5. Tilt front of the yoke right or left to obtain better convergence in circumference. (See figure 4.)
6. Keep the yoke position and put another wedge in either upper space. Remove cover paper and stick the wedge on picture tube to fix the yoke.
7. Detach the temporarily mounted wedge and put it in another upper space. Stick it on picture tube to fix the yoke.
8. After fixing three wedges, recheck overall convergence.
   Tighten the screw firmly to fix the yoke and check the yoke is firm.
9. Stick three adhesive tapes on wedges as shown in figure 2.



CONVERGENCE MAGNET ASSEMBLY

ADJUSTMENT OF MAGNETS

Figure 3.

4-POLE MAGNETS MOVEMENT

6-POLE MAGNETS MOVEMENT

Center Convergence by Convergence Magnets

INCLINE THE YOKE UP (OR DOWN)

INCLINE THE YOKE RIGHT (OR LEFT)

Circumference Convergence by DEF Yoke

Figure 4. Dot Movement Pattern

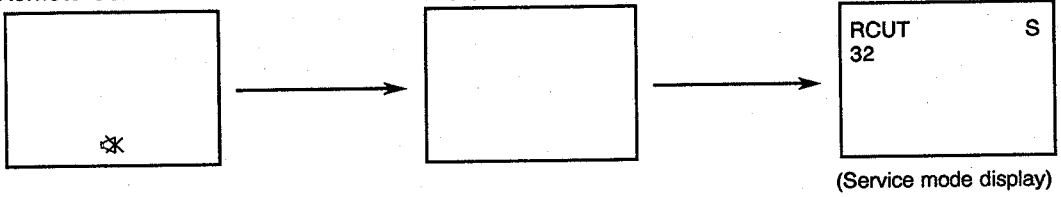
SERVICE MODE GENERAL INSTRUCTIONS

1. ENTERING TO SERVICE MODE

1) Press ✲ button once on Remote Control.

2) Press ✲ button again to keep pressing.

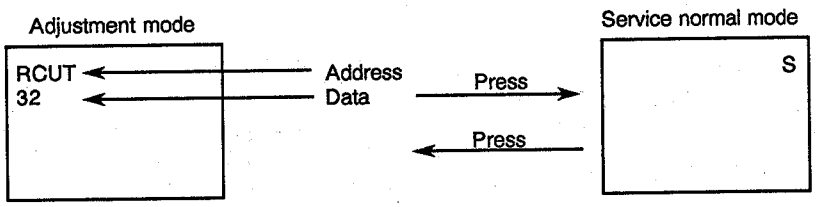
3) Keep pressing the ✲ button, press MENU button on TV set.



(Service mode display)

2. DISPLAYING THE ADJUSTMENT MENU

Press MENU button on TV.



3. SELECTING THE ADJUSTING ITEMS

Every pressing of CHANNEL ▲ button changes the adjustment items in the following order. (▼ button for reverse order.)

4. ADJUSTING THE DATA

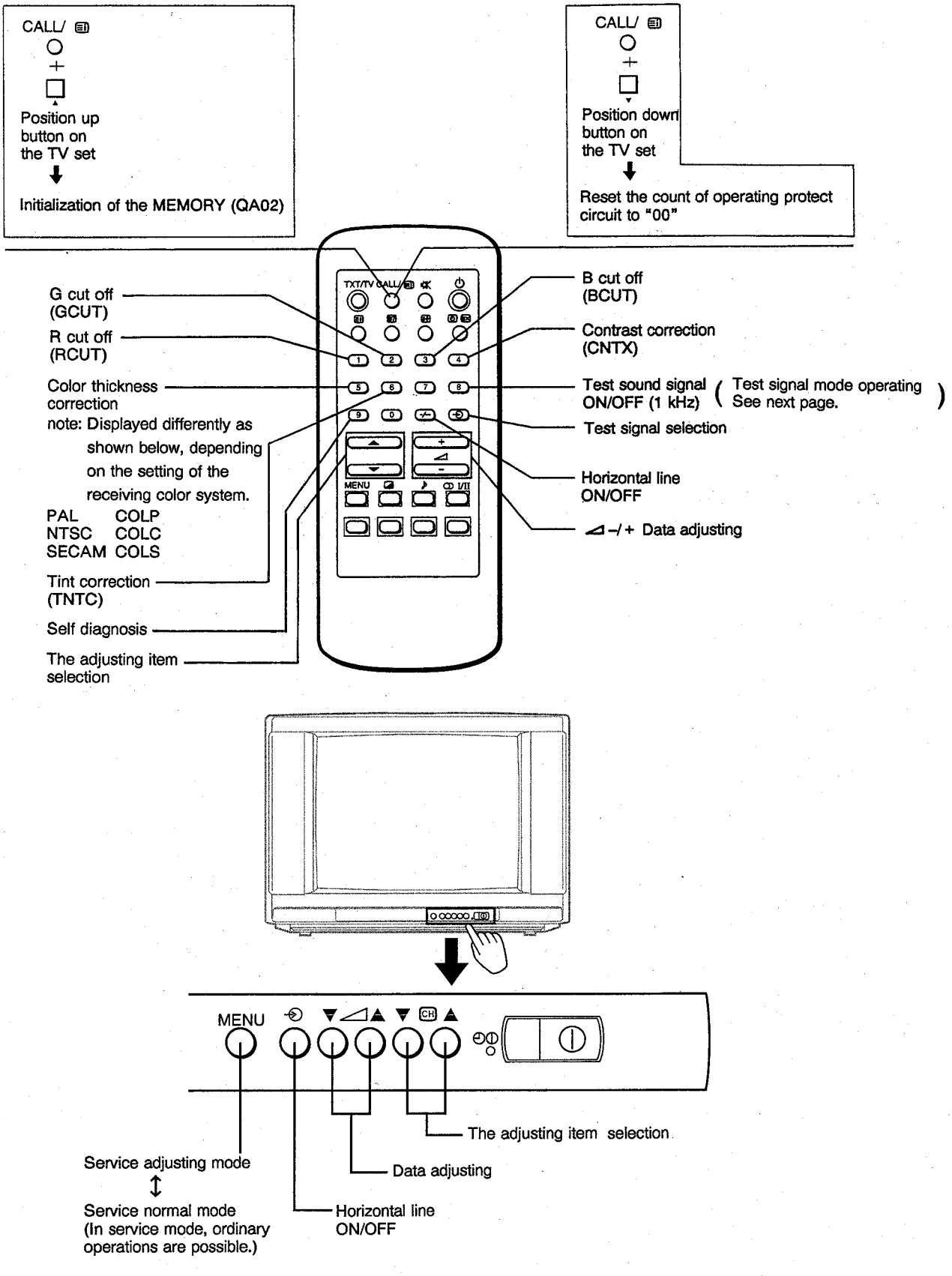
Pressing of VOLUME ▲ or ▼ button will change the value of data in the range from 00 to FF. The variable range depends on the adjusting item.

5. EXIT FROM SERVICE MODE

Press POWER button on the remote control to turn off the TV once.

OTHER SERVICE FUNCTION

The following key entry during display of adjustment menu provides special functions.


CALL/
Position up button on the TV set
Initialization of the MEMORY (QA02)
CALL/
Position down button on the TV set
Reset the count of operating protect circuit to "00"
G cut off (GCUT)
R cut off (RCUT)
Color thickness correction
note: Displayed differently as shown below, depending on the setting of the receiving color system.
PAL COLP
NTSC COLC
SECAM COLS
Tint correction (TNTC)
Self diagnosis
The adjusting item selection
B cut off (BCUT)
Contrast correction (CNTX)
Test sound signal ON/OFF (1 kHz)
(Test signal mode operating See next page.)
Test signal selection
Horizontal line ON/OFF
-/+ Data adjusting
MENU
The adjusting item selection
Data adjusting
Service adjusting mode
Service normal mode (In service mode, ordinary operations are possible.)
Horizontal line ON/OFF

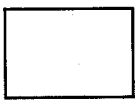
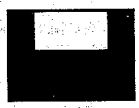
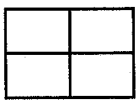
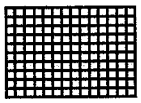
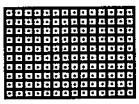
TEST SIGNAL SELECTION

Every pressing of ⊕ button changes the test patterns on screen as described below in service mode.

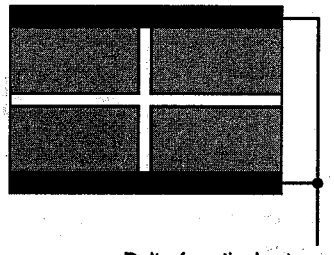
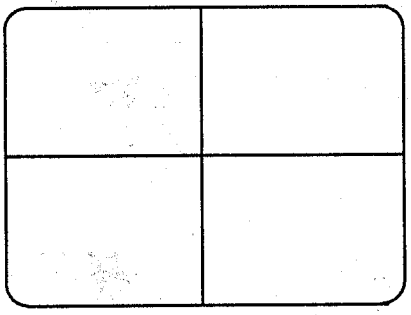
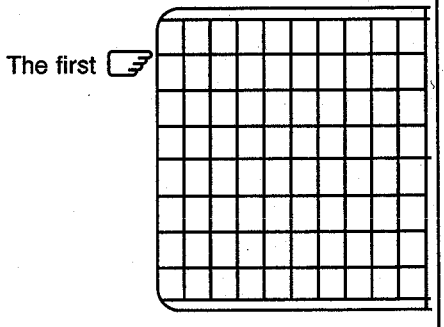
Signal off → NTSC signals (14 patterns)

↑ PAL signals (14 patterns) ←

- About inside signal: The inside signal is output at video input terminal from QA01, and is not output with the pin inserted into terminal. (Single color signal can be output.)

Signals	Picture	Using method
• Red single color • Green single color • Blue single color • Black single color • White single color		Purity and White uniformity of CRT Red single color. . . . Stopping G and B output of Q501 Green single color. . . . Stopping R and B output of Q501 Blue single color. . . . Stopping R and G output of Q501 Black single color. . . . Making black signal of approx. 1Vp-p in QA01 White single color. . . . Making white signal of approx. 1Vp-p in QA01
• W/B adjustment		White balance adjustment White part. . . . White balance adjustment/check in light area Black part. . . . White balance adjustment/check in dark area ※ Making approx. 1Vp-p signal in QA01.
• Black cross-bar • White cross-bar		Picture position (horizontal, vertical and slant) in CRT adjustment ※ Making approx. 1Vp-p signal in QA01.
• Black cross-hatch • White cross-hatch		Convergence and vertical amplitude adjustment ※ Making approx. 1Vp-p signal in QA01.
• Black cross-dot • White cross-dot		Convergence adjustment ※ Making approx. 1Vp-p signal in QA01.
• H signal (Left, right, white) • H signal (Left, right, black)		For checking (of purity drift) of white uniformity of CRT H signal (Left, right, white). . . . Check in light area H signal (Left, right, black). . . . Check in dark area The adjustment will be the best, if the time when unevenness of color in light area occurs, is a little longer than that in dark area. ※ Making approx. 1Vp-p signal in QA01.

SERVICE MODE ADJUSTMENT

ITEM	ADJUSTMENT PROCEDURE
INITIALIZATION OF QA02 (MEMORY)	After replacing QA02, the following initialization is required. 1. Call up the adjustment mode display following the steps 1 and 2 on page 21. 2. Press the CALL button on the Remote Control and CHANNEL ▲ button on the TV set simultaneously. The initialization of QA02 has been completed. 3. Check the picture carefully. If necessary, adjust any adjustment item. Perform "AUTOMATIC SEARCH MEMORY".
SUB-BRIGHTNESS (Address : BRTC) Note: Constrict the picture height until the vertical retrace line appears adjusting the address HIT (HEIGHT).	1. Set CONTRAST to "00", and BRIGHTNESS to "50" by adjusting user controls. 2. Set the TV in service mode to get white cross-bar of inside pattern. 3. Select BRTC (brightness correction), and adjust the ◿ – / + button to reduce the value so that white portion of inside pattern slightly light. 4. Adjust ◿ – / + button to increase the data value of BRTC, and set it just before the difference between the belt of vertical retrace and the border of black portion of inside pattern is visible. After that, return vertical height and contrast.  Belt of vertical retrace
HORIZONTAL POSITION ADJUSTMENT (HPOS) VERTICAL POSITION ADJUSTMENT (VPOS)	1. Set the TV in service mode, and get black or white cross-bar signal with VIDEO button on remote hand unit. 2. Select either HPOS (Horizontal picture phase) or VPOS (Vertical picture phase) with CHANNEL ▲, ▼ buttons, and adjust horizontal or vertical picture position in the center of screen with VOLUME ◿ – / + buttons. 
VERTICAL AMPLITUDE ADJUSTMENT (HIT)	1. Set the TV in service mode, and get black or white cross-hatch signal with VIDEO button on remote hand unit. 2. Select HIT (Vertical amplitude) with CHANNEL ▲, ▼ buttons, and adjust vertical amplitude with VOLUME ◿ – / + buttons so that vertical amplitude lacks a little. 3. Adjust vertical amplitude with VOLUME ◿ – / + buttons so that the first bar on cross-hatch signal touches edge of screen.  The first

ITEM	ADJUSTMENT PROCEDURE
WHITE BALANCE ADJUSTMENT • CUTOFF ADJUSTMENT (RCUT) (GCUT) (BCUT) • DRIVE ADJUSTMENT (GDRV) (BDRV)	1. Set Contrast to 40, and brightness to +20 by picture control. 2. Set the TV in service mode, and get the inside W/B adjusting signal with VIDEO button (see pages 10, 12.). 3. Select RCUT, GCUT and BCUT with CHANNEL ▲, ▼ buttons, to set individual values to 32, and to set GDRV and BDRV to 20 with VOLUME ◿ – / + buttons. 4. Press -/-- button on the remote control and rotate Screen VR to get one slight horizontal line on screen. Note: Every pressing of -/-- button provides Horizontal line picture and Normal picture alternately. 5. Press -/-- button to release horizontal line picture, and select the two other colors which did not light in the above step with CHANNEL ▲, ▼ buttons. Then tap VOLUME ◿ – / + buttons so that three colors slightly light in the same level. ※ To correct white balance in light area, select GDRV and BDRV with CHANNEL ▲, ▼ buttons to adjust. ※ To correct white balance in dark area, perform fine adjustment of RCUT, GCUT and BCUT. Light area check (to show white) Dark area check (to show black)

SELF DIAGNOSTIC FUNCTION

1) Press "9" button on Remote Control during display of adjustment menu.
   The diagnosis will begin to check if interface among IC's are executed properly.
2) During diagnosis, the following displays are shown.

```
⟨SELF CHECK⟩
① 23905356
② POWER    : 00
③ BUS LINE : OK
④ BUS CONT : OK
⑤ BLOCK    : UV V1
             QV01
```

① Part number of microcomputer (QA01)
② Operation number of protecting circuit ----"00" is normal.
When indication is other than "00", overcurrent apts to flow, and circuit parts may possibly be damaged.
③ BUS LINE CHECK ----"OK" is normal.
"SDA1–GND" means that SDA line is shorted to ground.
"SCL1–GND" means that SCL line is shorted to ground.
"SCL1–SDA1" means that SDA line is shorted to SCL line.
④ BUS CONT ----"OK" is normal.
When indication shows "QOOO NG", the device with the number may possibly be damaged.

⑤ BLOCK
UV : TV reception mode
V1 : VIDEO input mode (⊕)

Indicated color of mode now selected : Green and Red
Indicated color of other modes : White

Green : Normal
Red : The microcomputer operates to provide judgement of no video signal. The red color is still indicated though the signal is input, failure may exist in input signal line including QV01.
QV01 : In case of indication green ---Normal
In case of indication red with input signal----
Failure may exist in output line including QV01.

ADJUSTMENT OF VIDEO-CHROMA SYSTEM (Factory adjustment)
Model Name: S5E

Item	Name	Setting (User control)	Input signal	Measure-ment point	Adjustment procedure	Adjustment standard
[BRTC]	SUB BRIGHT CENTER	Contrast: MAX Bright : CENTER Color : MIN	Sub-bright signal	Screen adjustment	1. This adjustment must be done after [BRTC], screen VR and white balance adjustments have been completed. 2. Adjust number of black collapse lines of sub-bright signal.	5±1.5
[CNTX]	SUB CONTRAST	Contrast: MAX Bright : CENTER Color : MIN	Sub-bright signal	Q501 #23... (B-OUT)	1. Select slave address 35 [CNTX]. 2. [CNTX] selection will provide B/W mode. 3. In pedestal level of Y-signal, adjust amplitude of white level. Note : Before adjustment get the point without change by screen VR.	2.5V(p-p) –0.2V(p-p)
[COLC]	COLOR CONTROL CENTER NTSC	Contrast: MAX Bright : CENTER Color : CENTER Tint : CENTER	Sub-bright signal (3.58NTSC)	IC501 #23... (B-OUT)	1. Select slave address 37 [COLC]. 2. When [COLC] is selected, Y-signal is muted and only color signals are outputted. (This adjustment must be done after [TNTC] has been adjusted.) 3. Adjust amplitude of the upper half of the rainbow color bar output.	1.35V(p-p) ±0.2V(p-p)
[COLP]	SUB COLOR PAL	Contrast: MAX Bright : CENTER Color : CENTER	PHILIPS signal (PAL)	IC501 #23... (B-OUT)	1. Select slave address 39 [COLP]. 2. When [COLP] is selected, Y-signal is muted and only color signals are outputted. (This adjustment must be done after [COLC] has been adjusted.) 3. Adjust amplitude of the upper half of the color bar output.	1.35V(p-p) ±0.2V(p-p)
[TNTC]	TINT CONTROL CENTER	Contrast: MAX Bright : CENTER Color : CENTER Tint : CENTER	Sub-bright signal (3.58NTSC)	IC501 #23... (B-OUT)	1. Select slave address 38 [TNTC]. 2. When [TNTC] is selected, Y-signal is muted and only color signals are outputted. 3. Adjust it so that 6.25 of the rainbow color bar becomes max. (See Fig.-1.)	–5.0° ±5.0° (Refer to the conversion table.)
RQ50 (R-Y axis) RQ51 (B-Y axis)	SECAM W/B R-Y axis B-Y axis	Contrast: MAX Bright : CENTER Color : CENTER	SECAM color bar signal	QQ01 #9 (R-Y axis) #10 (B-Y axis)	1. Coincide the level of black and white portion of color difference signal to that of H. BLK portion. 2. Adjust RQ50 for R-Y axis and adjust RQ51 for B-Y axis. 3. Repeat the above steps because RQ50 and RQ51 affect each other.	±10mV or less on both axis
[COLS]	SUB COLOR CENTER SECAM	Contrast: MAX Bright : CENTER Color : CENTER	SECAM color bar signal	Q501 #23 (B-OUT)	1. Select slave address 3A [COLS]. 2. When [COLS] is selected, Y signal is muted, and only color signal is output. Perform this step after the adjustment of RQ50 and RQ51. 3. Adjust the peak amplitude of color bar.	1.9V(p-p) ±0.2V(p-p)

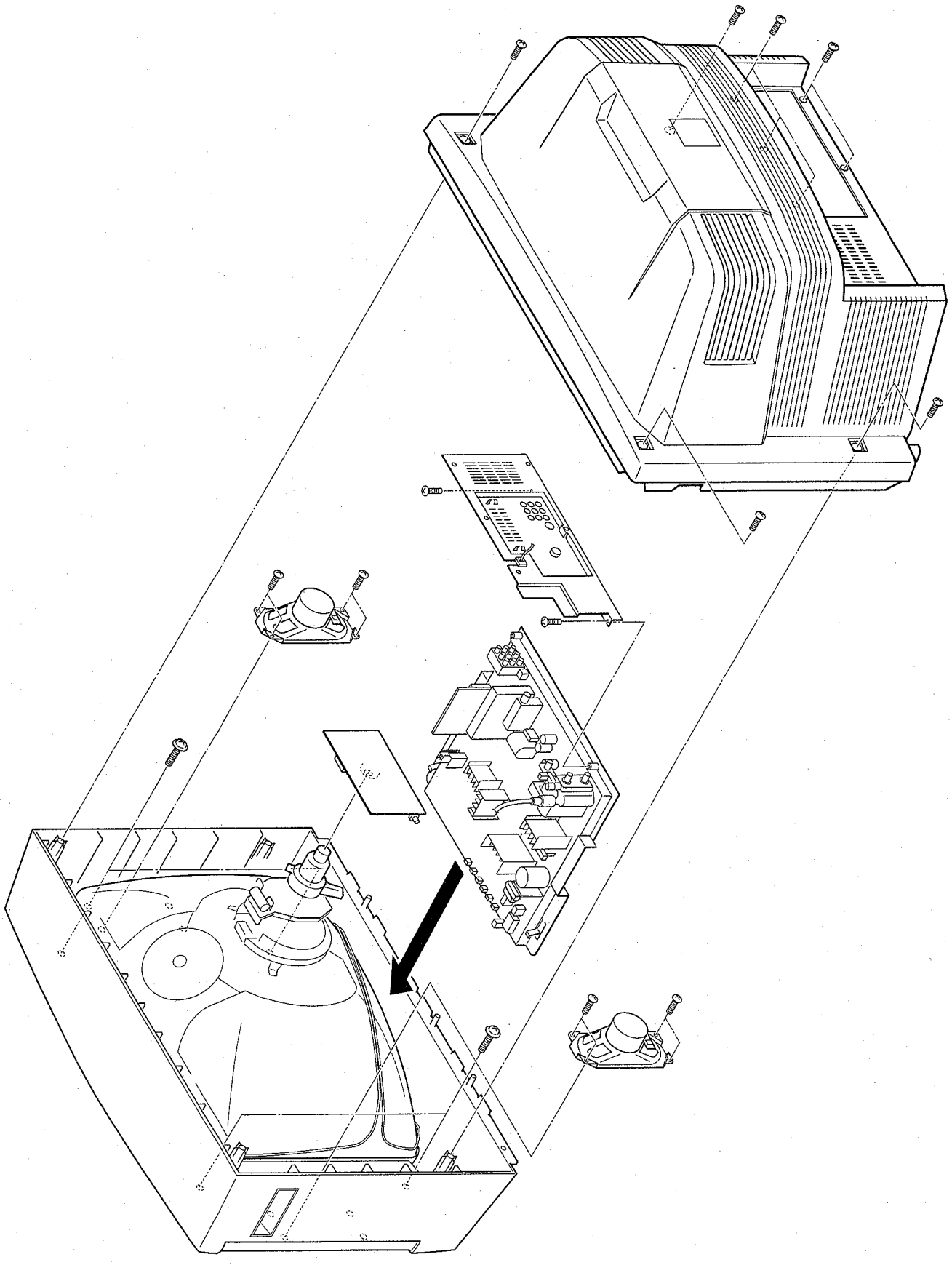
MULTI BUS E2PROM ADDRESS, ADJUSTING ADDRESS TABLE

Adjusting method	QA02 memory address	Name of item	Value of initializing QA02 (Hexa-decimal)	Adjustments
S	06B	OSD	60	OSD POSITION
↓	06C	OPT	0F	OPTION
F	06D	RCUT	32	R CUTOFF
↓	06E	GCUT	32	G CUTOFF
↓	06F	BCUT	32	B CUTOFF
↓	070	GDRV	20	G DRIVE
↓	071	BDRV	20	B DRIVE
↓	072	CNTX	39	SUB CONTRAST MAX
↓	073	BRTC	40	SUB BRIGHT CEN
↓	074	COLC	32	SUB COLOR CEN NTSC
↓	075	TNTC	39	SUB TINT CEN
↓	076	COLP	32	SUB COLOR CEN PAL
F	077	COLS	32	SUB COLOR CEN SECAM
S	078	CNTC	2D	SUB CONTRAST CEN
↓	079	CNTN	20	SUB CONTRAST MIN
↓	07A	BRTX	12	SUB BRIGHT MAX (DIFFERENCE)
↓	07B	BRTN	10	SUB BRIGHT MIN (DIFFERENCE)
↓	07C	COLX	3B	SUB COLOR MAX
↓	07D	COLN	10	SUB COLOR MIN
↓	07E	TNTX	17	SUB TINT MAX (DIFFERENCE)
↓	07F	TNTN	17	SUB TINT MIN (DIFFERENCE)
↓	080	ST3	19	SUB SHARP CEN 3.58NTSC (TV)
↓	081	SV3	19	SUB SHARP CEN 3.58NTSC (VIDEO)
↓	082	ST4	19	SUB SHARP CEN OTHER (TV)
↓	083	SV4	19	SUB SHARP CEN OTHER (VIDEO)
↓	084	TXCL	64	TEXT CONTRAST LEVEL
↓	085	BBCL	32	BLUE BACK CONTRAST LEVEL
↓	086	VM0	05	VCD MODE DATA
↓	087	WCTL	0C	WOOFER CONTROL MODE DATA
↓	088	BAS1	64	SELECTABLE SOUND1 BASS LEVEL
↓	089	BAS2	3C	SELECTABLE SOUND2 BASS LEVEL
↓	08A	TRE1	64	SELECTABLE SOUND1 TREBLE LEVEL
↓	08B	TRE2	46	SELECTABLE SOUND2 TREBLE LEVEL
↓	08C	WON1	E4	SELECTABLE SOUND1 BASSBOOST ON/OFF
↓	08D	WON2	A2	SELECTABLE SOUND2 BASSBOOST ON/OFF
↓	08E	WON	2D	WOOFER AUTO LOUDNESS
↓	08F	VOLS	75	VOL SCART
↓	090	FVOL	15	FM VOL PRE SCALE
↓	091	NVOL	3A	NICAM VOL PRE SCALE
↓	092	NICL	03	NICAM THRESHOLD LEVEL
↓	093	NICH	0A	NICAM THRESHOLD LEVEL
↓	094	IDL	40	IGR THRESHOLD LEVEL
↓	095	IDH	A0	IGR THRESHOLD LEVEL
S	096	EVOL	11	EXT PRE VOLUME
F	09B	HPOS	08	50Hz H-POSITION
F	09D	HIT	32	↓ H-WIDTH
S	09E	HPS	04	50Hz/60Hz H-POSITION (DIFFERENCE)
S	09F	HITS	04	50Hz/60Hz H-WIDTH (DIFFERENCE)
F	0A0	VLIN	0B	V-LINEARITY

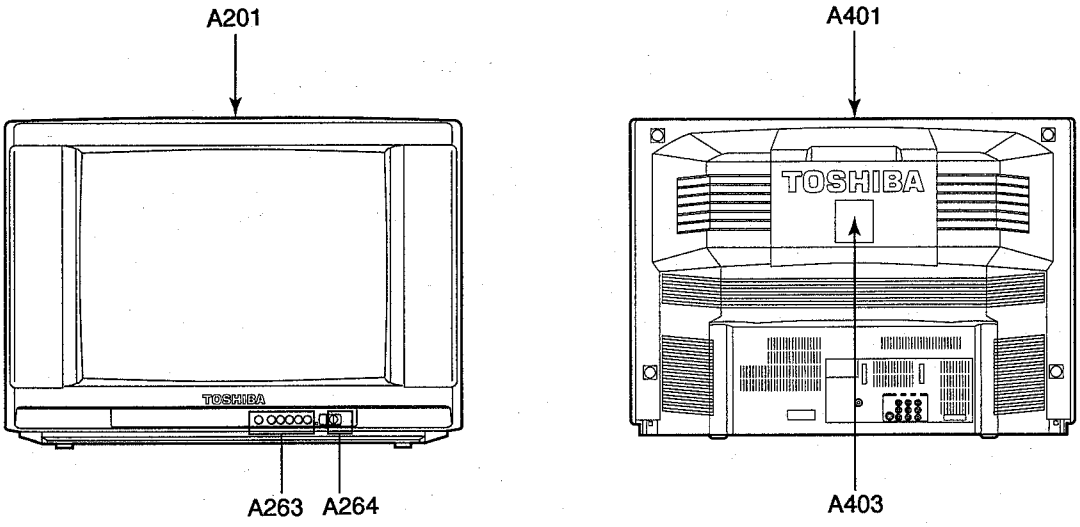
S ... semi-fixed data area which is fixed by model. (Do not adjust in field service.)
F ... This item may require adjustments by models after initialization, when QA02 is replaced.

Adjusting method	QA02 memory address	Name of item	Value of initializing QA02 (Hexa-decimal)	Adjustments
S	0A1	VSC	0A	V-S CORRECTION
↓	0A2	VPS	0B	V-SHIFT
S	0A3	VCP	04	V-COMPENSATION
F	0A4	WID	15	PICTURE WIDTH
F	0A5	PARA	16	E-W PARABOLA
S	0A6	CNR	04	E-W CORNER
F	0A7	TRAP	10	TRAPEZIUM
S	0A8	HCP	02	H-COMPENSATION
S	0A9	VFC	0F	50Hz V-F CORRECTION
F	0AF	PID	11	PAL IDENT LEVEL
F	0B0	TRP	01	CROMA TRAP f0
S	0B1	DLY0	07	Y DELAY TV SECAM (BG)
↓	0B2	DLY1	07	Y DELAY TV SECAM (OTHER)
↓	0B3	DLY2	07	Y DELAY VIDEO SECAM
↓	0B4	DLY3	04	Y DELAY TV OTHER (BG)
↓	0B5	DLY4	04	Y DELAY TV OTHER (DK, I)
↓	0B6	DLY5	05	Y DELAY TV OTHER (M, N)
↓	0B7	DLY6	05	Y DELAY VIDEO OTHER

S ... semi-fixed data area which is fixed by model. (Do not adjust in field service.)
F ... This item may require adjustments by models after initialization, when QA02 is replaced.



CABINET REPLACEMENT PARTS LIST



Location No.	Part No.	Description
A201	23410793	Front Cover (2955DE)
A201	23410795	Front Cover (2955SH)
A263	23444856	Button, CONTROL
A264	23444857	Button, POWER
A266	23836494	Spring, Coil
A270	23436554	Handhold
⚠A401	23426726	Back Cover
A403	23569773	Label, Model No. (2955DE)
A403	23569794	Label, Model No. (2955SH)

CHASSIS REPLACEMENT PARTS LIST

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 2 OF THIS MANUAL.

CAUTION: The international hazard symbols " ⚠ " in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE on page 2. Do not degrade the safety of the receiver through improper servicing.

NOTICE:
- *The part number must be used when ordering parts, in order to assist in processing, be sure to include the Model number and Description.*
- *The PC board assembly with * mark is no longer available after the end of the production.*

ABBREVIATIONS:

Capacitors..... CD : Ceramic Disk PF : Plastic Film EL : Electrolytic
Resistors..... CF : Carbon Film CC : Carbon Composition MF : Metal Film
OMF : Oxide Metal Film VR : Variable Resistor FR : Fusible Resistor

(All CD and PF capacitors are ±5%, 50V and all resistors, ±5%, 1/6W unless otherwise noted.)

Location No.	Part No.	Description
CAPACITORS		
C101	24796479	EL, 4.7μF, ±20%, 35V
C103	24794221	EL, 220μF, ±20%, 16V
C105	24212102	CD, 1000pF, ±10%
C106	24669100	EL, 10μF, ±20%, 50V
C108	24793221	EL, 220μF, ±20%, 10V
C111	24669229	EL, 2.2μF, ±20%, 50V
C112	24669229	EL, 2.2μF, ±20%, 50V
C114	24474151	CD, 150pF, ±10%
C201	24085957	EL, 0.47μF, ±20%, 50V, NP
C207	24232103	CD, 0.01μF, +80%, -20%
C210	24538104	PF, 0.1μF
C211	24793470	EL, 47μF, ±20%, 10V
C212	24794100	EL, 10μF, ±20%, 16V
C214	24794101	EL, 100μF, ±20%, 16V
C215	24793471	EL, 470μF, ±20%, 10V
C216	24232103	CD, 0.01μF, +80%, -20%
C220	24206108	EL, 0.1μF, 50V
C221	24206108	EL, 0.1μF, 50V
C222	24206108	EL, 0.1μF, 50V
C230	24794100	EL, 10μF, ±20%, 16V
C304	24214471	CD, 470pF, ±10%, 500V
C305	24617912	EL, 2.2μF, ±10%, 50V
C306	24073059	EL, 3300μF, ±20%, 25V
C307	24693473	PF, 0.047μF, 100V
C308	24668221	EL, 220μF, ±20%, 35V
C310	24796102	EL, 1000μF, ±20%, 35V
C311	24214561	CD, 560pF, ±10%, 500V
C313	24082057	PF, 0.22μF, 100V
C314	24590563	PF, 0.056μF
C315	24590102	PF, 1000pF
C316	24590104	PF, 0.1μF
C318	24666101	EL, 100μF, ±20%, 16V
C319	24212102	CD, 1000pF, ±10%
C320	24668101	EL, 100μF, ±20%, 35V
C322	24617912	EL, 2.2μF, ±10%, 50V
C323	24538184	PF, 0.18μF
C324	24538683	PF, 0.068μF
C325	24590183	PF, 0.018μF
C326	24538224	PF, 0.22μF
C327	24617787	EL, 470μF, ±20%, 16V

Location No.	Part No.	Description
C341	24794101	EL, 100μF, ±20%, 16V
C342	24795100	EL, 10μF, ±20%, 25V
C401	24669100	EL, 10μF, ±20%, 50V
C402	24212562	CD, 5600pF, ±10%
C403	24590103	PF, 0.01μF
C404	24669010	EL, 1μF, ±20%, 50V
C405	24212182	CD, 1800pF, ±10%
C406	24085935	EL, 1μF, 50V, Non-Polar
C408	24212181	CD, 180pF, ±10%
C413	24214821	CD, 820pF, ±10%, 500V
C417	24214391	CD, 390pF, ±10%, 500V
C419	24794470	EL, 47μF, ±20%, 16V
C420	24794101	EL, 100μF, ±20%, 16V
C430	24232103	CD, 0.01μF, +80%, -20%
C431	24794331	EL, 330μF, ±20%, 16V
⚠C440	24082585	PF, 7800pF, ±3%, 1500V
C441	24693472	PF, 4700pF, 100V
⚠C442	24095787	PF, 0.3μF, 400V
C443	24795102	EL, 1000μF, ±20%, 25V
C444	24082610	PF, 5600pF, ±3%, 1800V
C445	24828563	PF, 0.056μF, 200V
C446	24829433	PF, 0.43μF, 400V
C447	24700220	EL, 22μF, ±20%, 250V
C448	24640908	EL, 33μF, ±20%, 160V
C461	24668101	EL, 100μF, ±20%, 35V
⚠C463	24212222	CD, 2200pF, ±10%
C464	24640871	EL, 4.7μF, ±20%, 100V
C466	24797478	EL, 0.47μF, ±20%, 50V
C467	24095883	PF, 0.015μF, ±3%, 630V
C470	24666220	EL, 22μF, ±20%, 16V
C472	24538474	PF, 0.47μF
C475	24095887	PF, 0.01μF, ±3%, 630V
C477	24590393	PF, 0.039μF
C478	24590563	PF, 0.056μF
C504	24353560	CD, 56pF
C505	24232103	CD, 0.01μF, +80%, -20%
C506	24590153	PF, 0.015μF
C507	24353101	CD, 100pF
C509	24436101	CD, 100pF
C510	24797010	EL, 1μF, ±20%, 50V
C511	24212101	CD, 100pF, ±10%

Location No.	Part No.	Description
C512	24212101	CD, 100pF, ±10%
C520	24212471	CD, 470pF, ±10% (2955SH)
C530	24590473	PF, 0.047μF
C531	24590473	PF, 0.047μF
C560	24206228	EL, 0.22μF, 50V
C561	24212182	CD, 1800pF, ±10%
C570	24794221	EL, 220μF, ±20%, 16V
C610	24794100	EL, 10μF, ±20%, 16V
C612	24794470	EL, 47μF, ±20%, 16V
C661	24590102	PF, 1000pF
C662	24590102	PF, 1000pF
C663	24766100	EL, 10μF, ±20%, 50V
C670	24667470	EL, 47μF, ±20%, 25V
C671	24667470	EL, 47μF, ±20%, 25V
C673	24669229	EL, 2.2μF, ±20%, 50V
C676	24591124	PF, 0.12μF
C677	24591124	PF, 0.12μF
C678	24669229	EL, 2.2μF, ±20%, 50V
C679	24667470	EL, 47μF, ±20%, 25V
C681	24668102	EL, 1000μF, ±20%, 35V
C682	24668101	EL, 100μF, ±20%, 35V
C683	24668102	EL, 1000μF, ±20%, 35V
C702	24794101	EL, 100μF, ±20%, 16V
C703	24436820	CD, 82pF
C704	24591822	PF, 8200pF
C705	24232103	CD, 0.01μF, +80%, –20%
C706	24436470	CD, 47pF
C707	24795470	EL, 47μF, ±20%, 25V
C708	24232103	CD, 0.01μF, +80%, –20%
C712	24795470	EL, 47μF, ±20%, 25V
C713	24790100	EL, 10μF, ±20%, 160V
C714	24436101	CD, 100pF
C715	24214472	CD, 4700pF, ±10%, 500V
C716	24436101	CD, 100pF
C717	24214472	CD, 4700pF, ±10%, 500V
C718	24790470	EL, 47μF, ±20%, 160V
C719	24435560	CD, 56pF, 500V
C720	24790100	EL, 10μF, ±20%, 160V
C721	24790470	EL, 47μF, ±20%, 160V
C722	24436561	CD, 560pF
C726	24212102	CD, 1000pF, ±10%
C727	24436270	CD, 27pF
C771	24436390	CD, 39pF
C801	24082374	PF, 0.22μF, AC250V
C805	24092281	CD, 4700pF, ±20%, AC250V
C806	24092281	CD, 4700pF, ±20%, AC250V
C810	24086934	EL, 560μF, ±20%, 450V
C813	24094655	CD, 1000pF, ±20%, AC400V
C814	24094655	CD, 1000pF, ±20%, AC400V
C831	24794470	EL, 47μF, ±20%, 16V
C841	24796100	EL, 10μF, ±20%, 35V
C842	24794100	EL, 10μF, ±20%, 16V
C843	24590104	PF, 0.1μF
C846	24538224	PF, 0.22μF
C860	24214103	CD, 0.01μF, ±10%, 500V
C861	24214471	CD, 470pF, ±10%, 500V
C862	24082857	PF, 680pF, ±2%
C863	24590104	PF, 0.1μF
C864	24092474	CD, 220pF, ±10%, 2kV
C866	24669100	EL, 10μF, ±20%, 50V
C867	24212682	CD, 6800pF, ±10%
C868	24676470	EL, 47μF, ±20%, 100V
C869	24678229	EL, 2.2μF, ±20%, 200V
C870	24082889	PF, 0.068μF, 800V

Location No.	Part No.	Description
C871	24092345	CD, 1000pF, ±10%, 2kV
C876	24538474	PF, 0.47μF
C877	24667470	EL, 47μF, ±20%, 25V
C883	24538474	PF, 0.47μF
C884	24086916	EL, 330μF, ±20%, 160V
C885	24214471	CD, 470pF, ±10%, 500V
C886	24214471	CD, 470pF, ±10%, 500V
C889	24668222	EL, 2200μF, ±20%, 35V
C891	24082229	PF, 0.1μF, ±10%, 250V
C892	24790100	EL, 10μF, ±20%, 160V
C893	24092338	CD, 270pF, ±10%, 2kV
C894	24092338	CD, 270pF, ±10%, 2kV
C898	24212102	CD, 1000pF, ±10%
C902	24092345	CD, 1000pF, ±10%, 2kV
C903	24436121	CD, 120pF
C904	24436561	CD, 560pF
C905	24436561	CD, 560pF
C906	24436121	CD, 120pF
C907	24436561	CD, 560pF
C908	24436121	CD, 120pF
C909	24679220	EL, 22μF, ±20%, 250V
C910	24797478	EL, 0.47μF, ±20%, 50V
C911	24203100	EL, 10μF, ±20%, 16V
C912	24794331	EL, 330μF, ±20%, 16V
C913	24794220	EL, 22μF, ±20%, 16V
C914	24212103	CD, 0.01μF, ±10%
C930	24214101	CD, 100pF, ±10%, 500V
C931	24214101	CD, 100pF, ±10%, 500V
CA10	24212271	CD, 270pF, ±10%
CA25	24436330	CD, 33pF
CA33	24232103	CD, 0.01μF, +80%, –20%
CA34	24212101	CD, 100pF, ±10%
CA36	24212101	CD, 100pF, ±10%
CA37	24212101	CD, 100pF, ±10%
CA38	24212101	CD, 100pF, ±10%
CA42	24794100	EL, 10μF, ±20%, 16V
CA43	24232103	CD, 0.01μF, +80%, –20%
CA44	24232103	CD, 0.01μF, +80%, –20%
CA68	24794100	EL, 10μF, ±20%, 16V
CA69	24232103	CD, 0.01μF, +80%, –20%
CB01	24794470	EL, 47μF, ±20%, 16V
CB20	24212101	CD, 100pF, ±10%
CP01	24590104	PF, 0.1μF
CP03	24590104	PF, 0.1μF
CP04	24590104	PF, 0.1μF
CP05	24590103	PF, 0.01μF
CP06	24590103	PF, 0.01μF
CP07	24793470	EL, 47μF, ±20%, 10V
CP08	24590223	PF, 0.022μF
CQ01	24794470	EL, 47μF, ±20%, 16V
CQ02	24538224	PF, 0.22μF
CQ03	24538474	PF, 0.47μF
CQ04	24590104	PF, 0.1μF
CQ05	24232103	CD, 0.01μF, +80%, –20%
CQ06	24232103	CD, 0.01μF, +80%, –20%
CS01	24794100	EL, 10μF, ±20%, 16V
CS02	24797010	EL, 1μF, ±20%, 50V
CS03	24797010	EL, 1μF, ±20%, 50V
CS04	24797010	EL, 1μF, ±20%, 50V
CS05	24797010	EL, 1μF, ±20%, 50V
CS06	24797010	EL, 1μF, ±20%, 50V
CS07	24797010	EL, 1μF, ±20%, 50V
CS10	24794100	EL, 10μF, ±20%, 16V
CS11	24794100	EL, 10μF, ±20%, 16V

Location No.	Part No.	Description
CS29	24203220	EL, 22μF, ±20%, 16V
CT01	24590104	PF, 0.1μF
CT02	24353080	CD, 8pF, ±0.25pF
CT03	24353150	CD, 15pF
CT04	24212102	CD, 1000pF, ±10%
CT05	24590104	PF, 0.1μF
CT06	24590104	PF, 0.1μF
CT07	24085944	EL, 2.2μF, ±20%, 50V, Non-Polar
CT08	24232103	CD, 0.01μF, +80%, −20%
CT09	24794101	EL, 100μF, ±20%, 16V
CT10	24473220	CD, 22pF
CT11	24794101	EL, 100μF, ±20%, 16V
CT12	24590104	PF, 0.1μF
CT13	24794100	EL, 10μF, ±20%, 16V
CT14	24794100	EL, 10μF, ±20%, 16V
CT15	24436101	CD, 100pF
CT16	24436220	CD, 22pF
CV01	24794101	EL, 100μF, ±20%, 16V
CV02	24567103	PF, 0.01μF
CV11	24232103	CD, 0.01μF, +80%, −20%
CV20	24794100	EL, 10μF, ±20%, 16V
CV22	24794100	EL, 10μF, ±20%, 16V
CV30	24085981	EL, 10μF, ±20%, 16V, Non-Polar
CV32	24232103	CD, 0.01μF, +80%, −20%
CV33	24232103	CD, 0.01μF, +80%, −20%
CV34	24762471	EL, 470μF, ±20%, 10V
CV36	24794221	EL, 220μF, ±20%, 16V
CV37	24797010	EL, 1μF, ±20%, 50V
CV39	24794100	EL, 10μF, ±20%, 16V
CZ01	24794101	EL, 100μF, ±20%, 16V
CZ03	24085981	EL, 10μF, ±20%, 16V, Non-Polar

RESISTORS

R101	24382183	OMF, 18k ohm, 1W
R201	24366222	CF, 2200 ohm
R208	24366101	CF, 100 ohm
R209	24366101	CF, 100 ohm
R211	24366103	CF, 10k ohm
R212	24366224	CF, 220k ohm
R213	24366153	CF, 15k ohm
R214	24366103	CF, 10k ohm
R217	24367123	CF, 12k ohm, ±2%
R219	24366511	CF, 510 ohm
R228	24367332	CF, 3300 ohm, ±2%
R303	24366153	CF, 15k ohm
R304	24366683	CF, 68k ohm
R305	24322628	MF, 0.62 ohm, 1W
R306	24366473	CF, 47k ohm
R307	24366184	CF, 180k ohm
R308	24366102	CF, 1k ohm
R309	24382681	OMF, 680 ohm, 1W
R310	24366392	CF, 3900 ohm
R311	24366101	CF, 100 ohm
R314	24366105	CF, 1M ohm
R315	24366824	CF, 820k ohm
R316	24366154	CF, 150k ohm
R318	24366471	CF, 470 ohm
R319	24366471	CF, 470 ohm
R320	24366101	CF, 100 ohm
R321	24366101	CF, 100 ohm
R322	24366183	CF, 18k ohm

Location No.	Part No.	Description
R323	24366562	CF, 5600 ohm
R324	24366101	CF, 100 ohm
R325	24366183	CF, 18k ohm
R327	24321109	MF, 1 ohm, 1/2W
R328	24339479	MF, 4.7 ohm, 2W
R329	24366223	CF, 22k ohm
R330	24366102	CF, 1k ohm
R331	24366104	CF, 100k ohm
R332	24366392	CF, 3900 ohm
R335	24382681	OMF, 680 ohm, 1W
R336	24383271	OMF, 270 ohm, 2W
R337	24366473	CF, 47k ohm
R338	24366183	CF, 18k ohm
R339	24366153	CF, 15k ohm
R340	24382471	OMF, 470 ohm, 1W
R341	24366182	CF, 1800 ohm
R342	24366562	CF, 5600 ohm
R343	24310109	MF, 1.0 ohm, 1/2W
R344	24366392	CF, 3900 ohm
R349	24366153	CF, 15k ohm
R361	24366184	CF, 180k ohm
R362	24366105	CF, 1M ohm
R374	24366561	CF, 560 ohm
R375	24366222	CF, 2200 ohm
R400	24366105	CF, 1M ohm
R401	24366473	CF, 47k ohm
R402	24366622	CF, 6200 ohm
R403	24366682	CF, 6800 ohm
R404	24366123	CF, 12k ohm
R405	24366104	CF, 100k ohm
R407	24366224	CF, 220k ohm
R409	24366101	CF, 100 ohm
R411	24366391	CF, 390 ohm
R413	24366271	CF, 270 ohm
R415	24382272	OMF, 2700 ohm, 1W
R416	24019321	OMF, 1500 ohm, 5W
R417	24366182	CF, 1800 ohm
R420	24366221	CF, 220 ohm
R421	24366561	CF, 560 ohm (2955SH)
R422	24366101	CF, 100 ohm (2955SH)
⚠R424	24546159	FR, 1.5 ohm, 1/2W
R425	24381471	OMF, 470 ohm, 1/2W
R426	24366681	CF, 680 ohm
R427	24366392	CF, 3900 ohm
R428	24366561	CF, 560 ohm
R429	24552560	OMF, 56 ohm, 1/2W
R430	24366103	CF, 10k ohm
R431	24366103	CF, 10k ohm
⚠R432	24531560	FR, 56 ohm, 1/2W
⚠R441	24532102	FR, 1k ohm, 1W
R447	24382472	OMF, 4700 ohm, 1W
R448	24338478	MF, 0.47 ohm, 1W
R460	24552332	OMF, 3300 ohm, 1/2W
R461	24552472	OMF, 4700 ohm, 1/2W
⚠R462	24000211	FR, 15 ohm, 1/2W
R463	24323479	OMF, 4.7 ohm, 2W
R464	24366273	CF, 27k ohm
R465	24366114	CF, 110k ohm
R466	24366562	CF, 5600 ohm
R468	24366103	CF, 10k ohm
R469	24366203	CF, 20k ohm
R470	24338568	MF, 0.56 ohm, 1W
⚠R471	24531271	FR, 270 ohm, 1/2W
R473	24366183	CF, 18k ohm

Location No.	Part No.	Description
R474	24366184	CF, 180k ohm
R475	24381333	OMF, 33k ohm, 1/2W
R477	24366101	CF, 100 ohm
R480	24552222	OMF, 2200 ohm, 1/2W
R501	24366102	CF, 1k ohm
R502	24366102	CF, 1k ohm
R503	24366102	CF, 1k ohm
R504	24366271	CF, 270 ohm
R505	24366271	CF, 270 ohm
R506	24366271	CF, 270 ohm
R507	24366332	CF, 3300 ohm
R509	24366102	CF, 1k ohm
R510	24366122	CF, 1200 ohm
R511	24366101	CF, 100 ohm
R512	24366272	CF, 2700 ohm
R515	24366332	CF, 3300 ohm
R516	24366101	CF, 100 ohm
R517	24366101	CF, 100 ohm
R520	24366475	CF, 4.7M ohm
R522	24366475	CF, 4.7M ohm
R560	24366221	CF, 220 ohm
R561	24366564	CF, 560k ohm
R610	24366273	CF, 27k ohm
R612	24366103	CF, 10k ohm
R661	24366392	CF, 3900 ohm
R662	24366392	CF, 3900 ohm
R663	24366332	CF, 3300 ohm
R664	24366332	CF, 3300 ohm
R667	24366103	CF, 10k ohm
R668	24366103	CF, 10k ohm
R669	24366103	CF, 10k ohm
R676	24366229	CF, 2.2 ohm
R677	24366229	CF, 2.2 ohm
R702	24366222	CF, 2200 ohm
R703	24366511	CF, 510 ohm
R704	24366391	CF, 390 ohm
R706	24366102	CF, 1k ohm
R708	24366102	CF, 1k ohm
R709	24366563	CF, 56k ohm
R713	24366393	CF, 39k ohm
R715	24366223	CF, 22k ohm
R716	24366273	CF, 27k ohm
R717	24366333	CF, 33k ohm
R719	24366392	CF, 3900 ohm
R720	24366392	CF, 3900 ohm
R721	24366102	CF, 1k ohm
R722	24552471	OMF, 470 ohm, 1/2W
R723	24366471	CF, 470 ohm
R724	24366470	CF, 47 ohm
R725	24366182	CF, 1800 ohm
R730	24552100	OMF, 10 ohm, 1/2W
R731	24552331	OMF, 330 ohm, 1/2W
R732	24366820	CF, 82 ohm
R733	24366683	CF, 68k ohm
R734	24366820	CF, 82 ohm
R735	24366683	CF, 68k ohm
R736	24552620	OMF, 62 ohm, 1/2W
R737	24366152	CF, 1500 ohm
R738	24366123	CF, 12k ohm
R739	24366152	CF, 1500 ohm
R740	24552620	OMF, 62 ohm, 1/2W
R741	24321279	MF, 2.7 ohm, 1/2W
R742	24321279	MF, 2.7 ohm, 1/2W
R743	24554221	OMF, 220 ohm, 2W

Location No.	Part No.	Description
R744	24366122	CF, 1200 ohm
R745	24366122	CF, 1200 ohm
R760	24366101	CF, 100 ohm
R761	24366122	CF, 1200 ohm
R762	24366152	CF, 1500 ohm
R763	24366152	CF, 1500 ohm
R764	24366472	CF, 4700 ohm
R766	24366101	CF, 100 ohm
R771	24366471	CF, 470 ohm
R772	24366471	CF, 470 ohm
R773	24366332	CF, 3300 ohm
R774	24366105	CF, 1M ohm
R775	24366182	CF, 1800 ohm
R777	24366105	CF, 1M ohm
⚠R801	24009954	Metal-Glazed Resistor, 2.2M ohm, 1/2W
⚠R808	24019340	PTC Thermistor, 18 ohm, 290V
R811	24568271	Cement, 270 ohm, 7W
R812	24510479	Cement, 4.7 ohm, 5W
R813	24007061	Cement, 1.8 ohm, ±10%, 2W
⚠R830	24548399	FR, 3.9 ohm, 2W
R831	24366331	CF, 330 ohm
⚠R840	24531120	FR, 12 ohm, 1/2W
R842	24381182	OMF, 1800 ohm, 1/2W
R847	24366472	CF, 4700 ohm
R861	24384223	OMF, 22k ohm, 3W
R862	24552220	OMF, 22 ohm, 1/2W
R863	24552432	OMF, 4300 ohm, 1/2W
R864	24552561	OMF, 560 ohm, 1/2W
R866	24552390	OMF, 39 ohm, 1/2W
R867	24000210	MF, 51k ohm, ±1%, 1/4W
R868	24552103	OMF, 10k ohm, 1/2W
⚠R870	24531100	FR, 10 ohm, 1/2W
R871	24310109	MF, 1.0 ohm, 1/2W
R872	24377224	CF, 220k ohm, 1W
R874	24366473	CF, 47k ohm
R875	24366224	CF, 220k ohm
R876	24366472	CF, 4700 ohm
R877	24377224	CF, 220k ohm, 1W
R878	24366823	CF, 82k ohm
R883	24552752	OMF, 7500 ohm, 1/2W
R884	24552752	OMF, 7500 ohm, 1/2W
R888	24321228	MF, 0.22 ohm, 1/2W
R890	24382333	OMF, 33k ohm, 1W
R891	24366102	CF, 1k ohm
R892	24366101	CF, 100 ohm
⚠R899	24005007	Metal-Glazed Resistor, 8.2M ohm, 1W
R901	24376102	CF, 1k ohm, 1/2W
R902	24376102	CF, 1k ohm, 1/2W
R903	24376102	CF, 1k ohm, 1/2W
R904	24366472	CF, 4700 ohm
R905	24366150	CF, 15 ohm
R912	24366221	CF, 220 ohm
R914	24366561	CF, 560 ohm
R915	24366121	CF, 120 ohm
R916	24366220	CF, 22 ohm
R917	24366391	CF, 390 ohm
R918	24366270	CF, 27 ohm
R919	24366221	CF, 220 ohm
⚠R920	24000906	FR, 2.4 ohm, 2W
R921	24366561	CF, 560 ohm
R922	24366121	CF, 120 ohm

Location No.	Part No.	Description
R924	24366270	CF, 27 ohm
R925	24366391	CF, 390 ohm
R926	24366221	CF, 220 ohm
R928	24366561	CF, 560 ohm
R929	24366121	CF, 120 ohm
R930	24366270	CF, 27 ohm
R932	24366102	CF, 1k ohm
R934	24366271	CF, 270 ohm
R935	24366681	CF, 680 ohm
R936	24366750	CF, 75 ohm
R937	24366391	CF, 390 ohm
R942	24366562	CF, 5600 ohm
R943	24366562	CF, 5600 ohm
R944	24366562	CF, 5600 ohm
R945	24366220	CF, 22 ohm
R946	24366220	CF, 22 ohm
R960	24383153	OMF, 15k ohm, 2W
R961	24383153	OMF, 15k ohm, 2W
R962	24383153	OMF, 15k ohm, 2W
R963	24383153	OMF, 15k ohm, 2W
R964	24383153	OMF, 15k ohm, 2W
R965	24383153	OMF, 15k ohm, 2W
R977	24366122	CF, 1200 ohm
R992	24366150	CF, 15 ohm
RA02	24366102	CF, 1k ohm
RA03	24366102	CF, 1k ohm
RA04	24366682	CF, 6800 ohm
RA05	24366103	CF, 10k ohm
RA07	24366102	CF, 1k ohm
RA08	24366102	CF, 1k ohm
RA09	24366471	CF, 470 ohm
RA10	24366471	CF, 470 ohm
RA11	24366102	CF, 1k ohm
RA12	24366102	CF, 1k ohm
RA13	24366102	CF, 1k ohm
RA15	24366753	CF, 75k ohm (2955SH)
RA16	24366102	CF, 1k ohm
RA17	24366102	CF, 1k ohm
RA18	24366102	CF, 1k ohm
RA19	24366221	CF, 220 ohm
RA22	24366682	CF, 6800 ohm
RA23	24366682	CF, 6800 ohm
RA24	24366682	CF, 6800 ohm
RA25	24366182	CF, 1800 ohm
RA26	24366102	CF, 1k ohm
RA27	24366102	CF, 1k ohm
RA33	24366103	CF, 10k ohm
RA34	24366103	CF, 10k ohm
RA35	24366102	CF, 1k ohm
RA36	24366153	CF, 15k ohm
RA37	24366331	CF, 330 ohm
RA38	24366331	CF, 330 ohm
RA40	24366331	CF, 330 ohm
RA41	24366331	CF, 330 ohm
RA61	24366103	CF, 10k ohm
RA62	24366103	CF, 10k ohm
RA64	24366333	CF, 33k ohm
RA65	24366333	CF, 33k ohm
RA67	24366103	CF, 10k ohm
RA68	24366103	CF, 10k ohm
RA70	24366333	CF, 33k ohm
RA71	24366683	CF, 68k ohm
RA72	24366223	CF, 22k ohm
RA73	24366103	CF, 10k ohm

Location No.	Part No.	Description
RB01	24366271	CF, 270 ohm
RB02	24366221	CF, 220 ohm
RB03	24366101	CF, 100 ohm
RB09	24366470	CF, 47 ohm
RB11	24366103	CF, 10k ohm
RB12	24366223	CF, 22k ohm
RB26	24366103	CF, 10k ohm
RB27	24366103	CF, 10k ohm
RB28	24366104	CF, 100k ohm
RB30	24366103	CF, 10k ohm
RB40	24366183	CF, 18k ohm
RB41	24366182	CF, 1800 ohm
RB42	24366102	CF, 1k ohm
RB43	24366103	CF, 10k ohm
RB44	24366562	CF, 5600 ohm
RB45	24366102	CF, 1k ohm
RB46	24366331	CF, 330 ohm
RB60	24366103	CF, 10k ohm
RB61	24366103	CF, 10k ohm
RD01	24366152	CF, 1500 ohm
RD02	24366101	CF, 100 ohm
RP02	24366105	CF, 1M ohm
RQ01	24366152	CF, 1500 ohm
RQ02	24366152	CF, 1500 ohm
RQ03	24366222	CF, 2200 ohm
RQ05	24366473	CF, 47k ohm
RQ08	24366473	CF, 47k ohm
RQ50	24066955	VR, 1k ohm, 1/10W
RQ51	24066952	VR, 10k ohm, 1/10W
RR11	24366472	CF, 4700 ohm
RR13	24366821	CF, 820 ohm (2955DE)
RR13	24366751	CF, 750 ohm (2955SH)
RR14	24366821	CF, 820 ohm (2955DE)
RR14	24366751	CF, 750 ohm (2955SH)
RR15	24366821	CF, 820 ohm (2955DE)
RR15	24366751	CF, 750 ohm (2955SH)
RR27	24366472	CF, 4700 ohm
RR28	24366472	CF, 4700 ohm
RR29	24366472	CF, 4700 ohm
RR34	24366182	CF, 1800 ohm (2955DE)
RR35	24366102	CF, 1k ohm
RR36	24366682	CF, 6800 ohm (2955DE)
RR37	24366682	CF, 6800 ohm (2955DE)
RR38	24366682	CF, 6800 ohm (2955DE)
RS01	24366103	CF, 10k ohm
RS02	24366104	CF, 100k ohm
RS03	24366103	CF, 10k ohm
RS04	24366104	CF, 100k ohm
RS09	24366750	CF, 75 ohm
RS14	24366101	CF, 100 ohm
RS15	24366101	CF, 100 ohm
RS17	24366472	CF, 4700 ohm
RS18	24366472	CF, 4700 ohm
RS19	24366101	CF, 100 ohm
RS20	24366222	CF, 2200 ohm
RS21	24366101	CF, 100 ohm
RS22	24366222	CF, 2200 ohm
RS23	24366102	CF, 1k ohm
RS24	24366102	CF, 1k ohm
RS27	24366561	CF, 560 ohm
RT01	24366332	CF, 3300 ohm
RT02	24366100	CF, 10 ohm
RT03	24366101	CF, 100 ohm
RT04	24366273	CF, 27k ohm

Location No.	Part No.	Description
RT05	24366103	CF, 10k ohm
RT06	24366103	CF, 10k ohm
RT07	24366101	CF, 100 ohm
RT08	24366103	CF, 10k ohm
RT09	24366101	CF, 100 ohm
RT10	24366472	CF, 4700 ohm
RT11	24366392	CF, 3900 ohm
RT12	24366682	CF, 6800 ohm
RT13	24366103	CF, 10k ohm
RT14	24366222	CF, 2200 ohm
RT15	24366101	CF, 100 ohm
RT16	24366101	CF, 100 ohm
RT17	24366102	CF, 1k ohm
RT18	24366152	CF, 1500 ohm
RT19	24366122	CF, 1200 ohm
RT20	24366471	CF, 470 ohm
RV01	24366103	CF, 10k ohm
RV05	24366223	CF, 22k ohm
RV10	24366101	CF, 100 ohm
RV11	24366472	CF, 4700 ohm
RV12	24366101	CF, 100 ohm
RV13	24366472	CF, 4700 ohm
RV14	24366101	CF, 100 ohm
RV21	24366221	CF, 220 ohm
RV24	24552101	OMF, 100 ohm, 1/2W
RV25	24366750	CF, 75 ohm
RV26	24366101	CF, 100 ohm
RV29	24366223	CF, 22k ohm
RV30	24366750	CF, 75 ohm
RV31	24366750	CF, 75 ohm
RV32	24366101	CF, 100 ohm
RV87	24366561	CF, 560 ohm
RV88	24366102	CF, 1k ohm
RV89	24366102	CF, 1k ohm
RV90	24366101	CF, 100 ohm
RV91	24366101	CF, 100 ohm

COILS & TRANSFORMERS

L201	23289100	Coil, Peaking, TRF4100AF
L202	23289100	Coil, Peaking, TRF4100AF
L301	23103880	Coil (Ferrite Bead), TEM2011Y
L302	23237975	Coil, Peaking, TRF4101AC
L400	23289100	Coil, Peaking, TRF4100AF
L441	23233947	Coil, Linearity, TLN2144G
L442	23248122	Coil, Choke, TLN3384D
L461	23221878	Coil, Choke, TLN3254D
⚠L462	23231157	Deflection Yoke, TDY-629FS
L463	23103859	Coil (Ferrite Bead), TEM2011
L509	23289680	Coil, Peaking, TRF4680AF
L702	23261974	Coil, Choke, HC5-035
L703	23289390	Coil, Peaking, TRF4390AF
L704	23103859	Coil (Ferrite Bead), TEM2011
L705	23103859	Coil (Ferrite Bead), TEM2011
L706	23289470	Coil, Peaking, TRF4470AF
L771	23289470	Coil, Peaking, TRF4470AF
L805	23261959	Coil, Choke, TRF9240
L806	23261959	Coil, Choke, TRF9240
L830	23289100	Coil, Peaking, TRF4100AF
L861	23103880	Coil (Ferrite Bead), TEM2011Y
L862	23103937	Coil (Ferrite Bead), TEM2004
L863	23103880	Coil (Ferrite Bead), TEM2011Y
L864	23103880	Coil (Ferrite Bead), TEM2011Y
L883	23103775	Coil (Ferrite Bead), TEM2014
L884	23103775	Coil (Ferrite Bead), TEM2014

Location No.	Part No.	Description
L885	23248073	Coil, Choke, TLN3299D
L886	23103880	Coil (Ferrite Bead), TEM2011Y
L887	23222694	Coil, Width, TLN2026
L888	23103880	Coil (Ferrite Bead), TEM2011Y
⚠L901	23200294	Coil, Degaussing, TSB-2366AG
L902	23289221	Coil, Peaking, TRF4221AF
L903	23289221	Coil, Peaking, TRF4221AF
L904	23289221	Coil, Peaking, TRF4221AF
L905	23289390	Coil, Peaking, TRF4390AF
L906	23289390	Coil, Peaking, TRF4390AF
L907	23289390	Coil, Peaking, TRF4390AF
LA01	23289100	Coil, Peaking, TRF4100AF
LP01	23289470	Coil, Peaking, TRF4470AF
LT01	23289339	Coil, Peaking, TRF43R3AF
LT02	23238562	Coil, Peaking, TRF4109AJ
LT03	23238920	Coil, Peaking, TRF4150AC
LT04	23238714	Coil, Peaking, TRF4100AJ
LT05	23238714	Coil, Peaking, TRF4100AJ
LT06	23238714	Coil, Peaking, TRF4100AJ
LT07	23238714	Coil, Peaking, TRF4100AJ
LT08	23103880	Coil (Ferrite Bead), TEM2011Y
LT09	23238714	Coil, Peaking, TRF4100AJ
LT10	23238506	Coil, Peaking, TRF4229AJ
LT11	23238714	Coil, Peaking, TRF4100AJ
LT12	23238506	Coil, Peaking, TRF4229AJ
LT13	23238506	Coil, Peaking, TRF4229AJ
LT15	23238710	Coil, Peaking, TRF4220AJ
⚠T401	23224336	Transformer, Horiz. Drive, TLN1083
⚠T461	23236505	Transformer, Flyback, TFB4132ZD
⚠T801	23211665	Line Filter, TRF3196
⚠T862	23217289	Transformer, Converter, TPW3333AS

SEMICONDUCTORS

Q301	B0378560	IC, TA8427K
Q302	B0384683	IC, TA8859AP
Q310	A6002020	Transistor, RN1202
Q311	23314445	Transistor, 2SC4721-Q
Q321	A6342206	Transistor, 2SC2878-A(TE
Q322	A6342206	Transistor, 2SC2878-A(TE
Q340	23114530	Transistor, 2SA933S-Q
Q402	A678971D	Transistor, 2SC1569 FA-5
Q403	23314445	Transistor, 2SC4721-Q
⚠Q404	A6872801	Transistor, 2SD2253(FA)
Q420	23314141	Transistor, 2SC3852
Q421	23114528	Transistor, 2SC1740S-Q
Q422	23114530	Transistor, 2SA933S-Q (2955SH)
Q460	23314850	Transistor, 2SA1788-E
Q461	23114528	Transistor, 2SC1740S-Q
Q462	23114528	Transistor, 2SC1740S-Q
Q501	23905395	IC, M52707SP-A
Q608	A6342206	Transistor, 2SC2878-A(TE
Q609	A6342206	Transistor, 2SC2878-A(TE
Q610	B0376856	IC, TA8211AH
Q612	23114530	Transistor, 2SA933S-Q
Q701	23114528	Transistor, 2SC1740S-Q
Q704	A6734590	Transistor, 2SC752(G)TM-Y
Q706	23114528	Transistor, 2SC1740S-Q
Q707	A6734590	Transistor, 2SC752(G)TM-Y
Q709	23114528	Transistor, 2SC1740S-Q
Q710	23114530	Transistor, 2SA933S-Q

Location No.	Part No.	Description
Q711	23314701	Transistor, 2SA1186A
Q712	23314705	Transistor, 2SD1763A
Q719	23114528	Transistor, 2SC1740S-Q
Q720	23114528	Transistor, 2SC1740S-Q
Q721	23114528	Transistor, 2SC1740S-Q
Q722	23114530	Transistor, 2SA933S-Q
Q771	23114530	Transistor, 2SA933S-Q
Q772	A6041860	Transistor, 2SK117-GR
Q773	23114528	Transistor, 2SC1740S-Q
Q801	23904914	IC, STR-Z3302-L
Q830	23314141	Transistor, 2SC3852
Q840	23318299	IC, L78MR05
Q862	A8645166	Photo Coupler, TLP721F(D4-G
Q872	23314141	Transistor, 2SC3852
Q873	23114528	Transistor, 2SC1740S-Q
Q874	23114528	Transistor, 2SC1740S-Q
Q901	23314811	Transistor, 2SC5147
Q902	23114528	Transistor, 2SC1740S-Q
Q903	23314811	Transistor, 2SC5147
Q904	23114528	Transistor, 2SC1740S-Q
Q905	23314811	Transistor, 2SC5147
Q906	23114528	Transistor, 2SC1740S-Q
Q907	23114530	Transistor, 2SA933S-Q
Q908	A6321265	Transistor, 2SC2120-Y(TE)
QA01	23905356	IC, M37222M6-C83SP
QA02	23904665	IC, NM24C04EN
QB01	23114528	Transistor, 2SC1740S-Q
QB02	23114530	Transistor, 2SA933S-Q
QB03	A6002050	Transistor, RN1205
QB21	23114528	Transistor, 2SC1740S-Q
QB30	23114528	Transistor, 2SC1740S-Q
QB40	23114528	Transistor, 2SC1740S-Q
QD01	23114528	Transistor, 2SC1740S-Q
QP01	23904954	IC, U3660M-B
QQ01	23905306	IC, M52325AP
QR07	23114530	Transistor, 2SA933S-Q
QR08	23114530	Transistor, 2SA933S-Q
QR09	23114530	Transistor, 2SA933S-Q
QS01	23114528	Transistor, 2SC1740S-Q
QS02	23114528	Transistor, 2SC1740S-Q
QS03	A6342206	Transistor, 2SC2878-A(TE
QS04	A6342206	Transistor, 2SC2878-A(TE
QT01	23904899	IC, SAA5281ZP/E
QT02	23114528	Transistor, 2SC1740S-Q
QT03	23114528	Transistor, 2SC1740S-Q
QT04	23114530	Transistor, 2SA933S-Q
QT05	23114528	Transistor, 2SC1740S-Q
QV01	B0385655	IC, TA1219N
QV02	23114528	Transistor, 2SC1740S-Q
QV03	23114528	Transistor, 2SC1740S-Q
QV13	23114530	Transistor, 2SA933S-Q
D101	23115878	Diode, Zener, μPC574J, (L)
D201	23115537	Diode, 1SS131
D301	23118479	Diode, BYD33J
D305	23115537	Diode, 1SS131
D306	23115537	Diode, 1SS131
D307	23316325	Diode, Zener, UZ9.1BSC
D308	23118479	Diode, BYD33J
D309	23316326	Diode, Zener, UZ10BSA
D319	23118822	Diode, ERB12-02
D320	23118822	Diode, ERB12-02
D321	23316287	Diode, Zener, UZ2.4BSB
D332	23316794	Diode, SC570A
D340	23316310	Diode, Zener, UZ5.6BSC

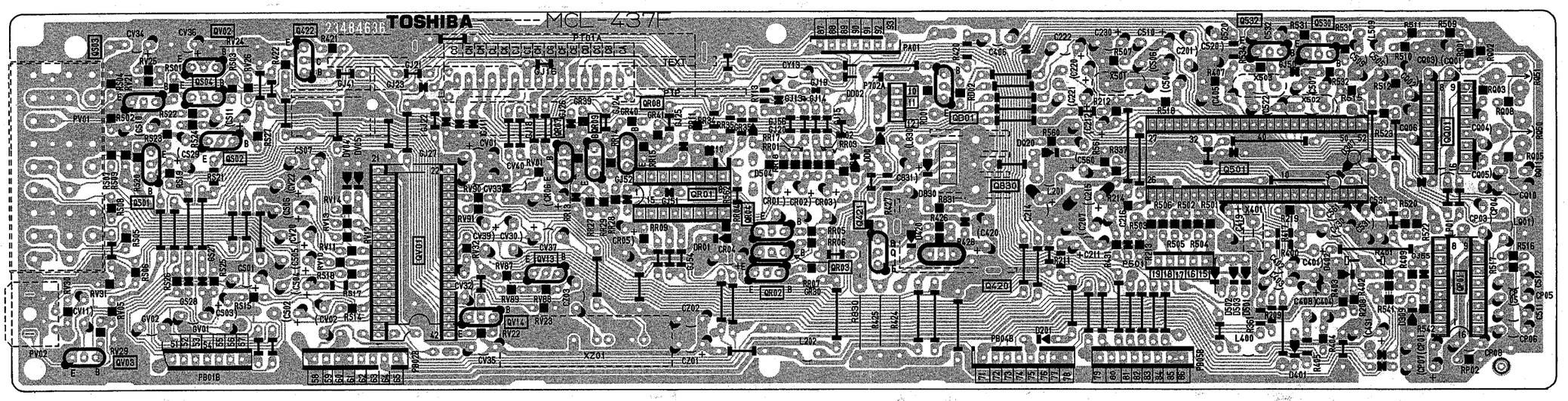
Location No.	Part No.	Description
D401	23316321	Diode, Zener, UZ8.2BSB
D402	23316333	Diode, Zener, UZ12BSB
D404	23115537	Diode, 1SS131
D406	23118479	Diode, BYD33J
D408	A7580658	Diode, 3JH41
D409	23316326	Diode, Zener, UZ10BSA
D420	23316317	Diode, Zener, UZ7.5BSA
D441	23316312	Diode, Zener, UZ6.2BSB
D460	A7568460	Diode, TVR-1B
D461	23316582	Diode, ERC20-06
D463	23115537	Diode, 1SS131
D464	23316332	Diode, Zener, UZ3.9BSB
D465	23316309	Diode, Zener, UZ5.6BSB
D466	23316309	Diode, Zener, UZ5.6BSB
D467	A7568754	Diode, 1S1887AFA-1
D468	23316332	Diode, Zener, UZ3.9BSB
D475	23316323	Diode, Zener, UZ9.1BSA
D477	23115537	Diode, 1SS131
D478	23115537	Diode, 1SS131
D501	23316327	Diode, Zener, UZ10BSB
D502	23316327	Diode, Zener, UZ10BSB
D503	23316327	Diode, Zener, UZ10BSB
D505	23115537	Diode, 1SS131
D506	23115537	Diode, 1SS131
D610	23115537	Diode, 1SS131
D611	23115537	Diode, 1SS131
D612	23115537	Diode, 1SS131
D615	23115537	Diode, 1SS131
D616	23115537	Diode, 1SS131
D617	23115537	Diode, 1SS131
D618	23115537	Diode, 1SS131
D619	23115537	Diode, 1SS131
D704	23115537	Diode, 1SS131
D705	23115537	Diode, 1SS131
D706	A7568475	Diode, TVR-2D
D707	A7568475	Diode, TVR-2D
D715	23115537	Diode, 1SS131
D720	23115537	Diode, 1SS131
D721	23115537	Diode, 1SS131
⚠D801	23316795	Diode, D6SB60L, F05
D830	23316310	Diode, Zener, UZ5.6BSC
D862	23118094	Diode, EU2A
D864	23118094	Diode, EU2A
D871	23316345	Diode, Zener, UZ18BSB
D872	23316338	Diode, Zener, UZ15BSA
D875	23316345	Diode, Zener, UZ18BSB
D876	23115537	Diode, 1SS131
D878	23316360	Diode, Zener, UZ27BSC
D880	23115537	Diode, 1SS131
D883	23316531	Diode, RG4
D884	23316531	Diode, RG4
D885	23316766	Diode, RU2YX
D886	23316766	Diode, RU2YX
D890	23115537	Diode, 1SS131
D891	23316554	Diode, 1SS146
D901	23115537	Diode, 1SS131
D903	23115537	Diode, 1SS131
D904	23115537	Diode, 1SS131
D905	23115537	Diode, 1SS131
D906	23115537	Diode, 1SS131
D907	23115537	Diode, 1SS131
D908	23115537	Diode, 1SS131
D909	23115537	Diode, 1SS131
D910	23115537	Diode, 1SS131

Location No.	Part No.	Description
D911	A7568250	Diode, 1S1834
DB01	A8636650	Diode (LED), TLSG116
DB03	23358522	LED, SIR-56SB3F
DB30	23115537	Diode, 1SS131
DD01	23115537	Diode, 1SS131 (2955DE)
DD02	23115537	Diode, 1SS131 (2955DE)
DQ20	23115537	Diode, 1SS131
MISCELLANEOUS		
E912	23848729	Rubber Wedge
⚠F470	23144829	Fuse, 1.0A
F470A	23165433	Holder, Fuse
⚠F801	23144508	Fuse, 4.0A
F801A	23165433	Holder, Fuse
G472	24531121	FR, 120 ohm, 1/2W
G520	23238704	Coil, Peaking, TRF4680AJ (2955SH)
G614	23238714	Coil, Peaking, TRF4100AJ
G615	23238714	Coil, Peaking, TRF4100AJ
G616	24366103	CF, 10k ohm
G714	24545220	FR, 22 ohm, 1/4W
G765	24366471	CF, 470 ohm
G874	24366822	CF, 8200 ohm
G933	24366750	CF, 75 ohm
GA60	24366470	CF, 47 ohm
GR35	23115537	Diode, 1SS131
GR42	23115537	Diode, 1SS131 (2955DE)
GT21	24366561	CF, 560 ohm (2955DE)
H002	23148231	Module, MVCS43, IF/MPX (2955DE)
H002	23148244	Module, MVCS43B, IF/MPX (2955SH)
KB01	23904946	Remote Sensor, RPM-676CBR-S
L462B	23949616	Compensator, CONV, TC-R
L462C	23199192	Conver Revision Board
L462D	23997346	Compensator, CONV, TC-N
⚠P801	23372011	Power Cord (2955DE)
⚠P801	23372009	Power Cord (2955SH)
PV01	23365867	Jack, 9P
S202	23344333	Switch, Lever, 1C3P
⚠S801	23344385	Switch, Power
SA01	23145227	Switch, Push, 1C1P
SA02	23145227	Switch, Push, 1C1P
SA03	23145227	Switch, Push, 1C1P
SA04	23145227	Switch, Push, 1C1P
SA05	23145227	Switch, Push, 1C1P
SA06	23145227	Switch, Push, 1C1P
⚠SR81	23146935	Relay, AC120V
⚠V901A	23902068	Socket, CRT, 10P
V901B	23102959	Magnet, Rubber, Z2007A
V901M	23102438	Magnet, Purity-Convergence, MAG-1093
W661	23351107	Speaker, SPK-1374, 60x120mm, 8 ohm
W662	23351107	Speaker, SPK-1374, 60x120mm, 8 ohm
W701	23250874	Coil, Delay Line, TRF2048A
X401	23153423	Ceramic Resonator, 503KHz, TCR1073
X501	23153427	Crystal, 3.58MHz
X502	23153410	Crystal, 4.43MHz
XA01	23153325	Ceramic Resonator, 8.00M, TCR1056

Location No.	Part No.	Description
XT01	23153012	Crystal, 27MHz
XZ01	23303168	Filter, Glass Delay, ADL-MN138T
Z801	23904998	IC, HIC1016
Z860	23144451	Protector, PRF5000, 125V, 5A
PC BOARD ASSEMBLIES		
✻U901		CRT Drive Board, PB5965
✻U902		Pow/Def/Aud Board, PB5967 (2955DE)
✻U902		Pow/Def/Aud Board, PB6014 (2955SH)
✻U903		Signal Board, PB5968 (2955DE)
✻U903		Signal Board, PB6015 (2955SH)
✻U904		Text Board, PB5728 (2955DE)
PICTURE TUBE		
⚠V901	23312665	Picture Tube, A68LEF78X(C)
TUNER		
H001	23321158	Tuner, ECA11
ACCESSORIES		
K902	23306092	Remote Hand Unit, CT-9785 (2955DE)
K902	23306150	Remote Hand Unit, CT-9841 (2955SH)
AT03	23305743	Battey Cover
Y101	23562538	Owner's Manual, English, 2955DE
Y101	23562572	Owner's Manual, Chinese, 2955SH

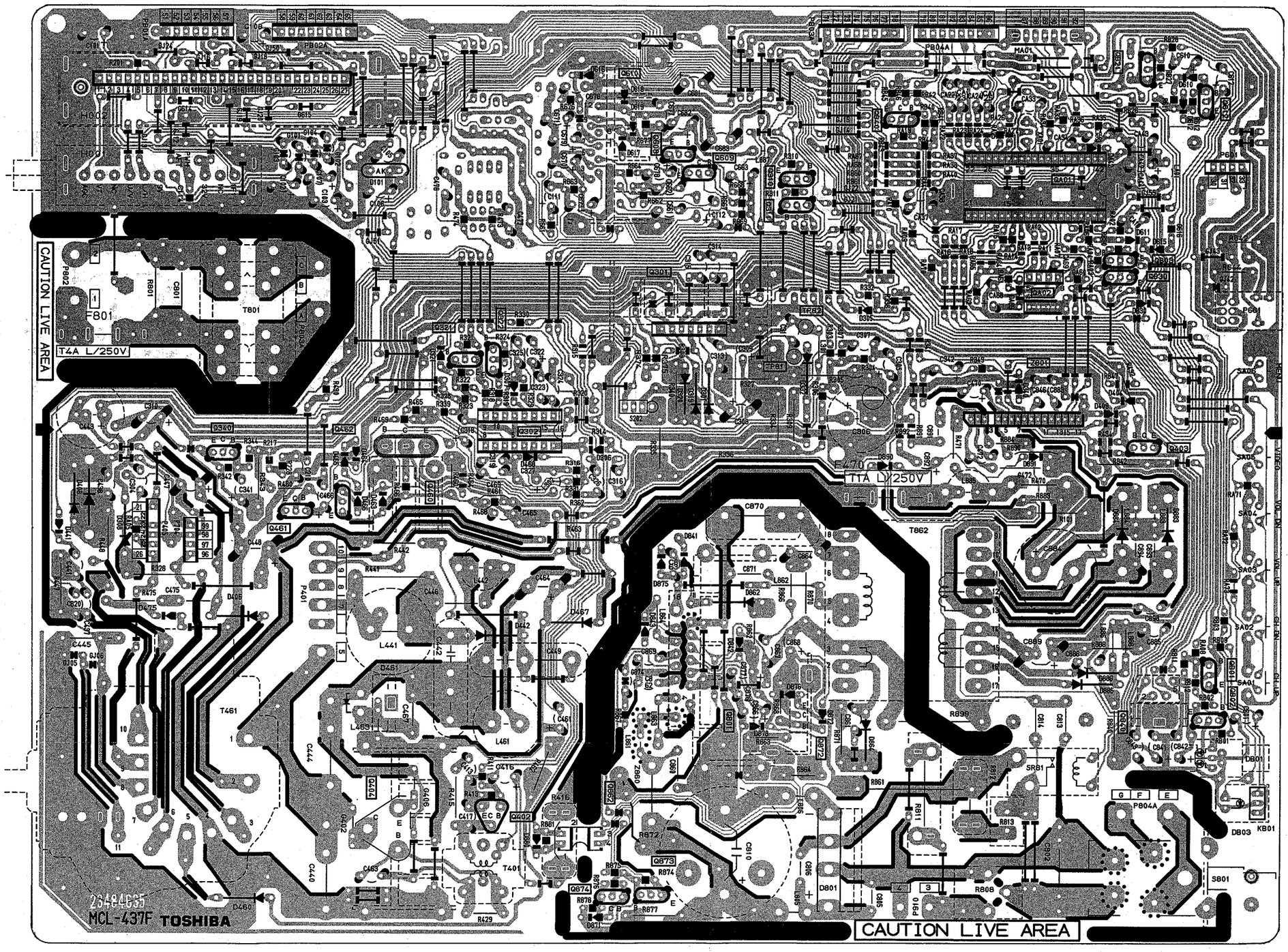
SIGNAL BOARD PB5968 (2955DE) PB6015 (2955SH)

BOTTOM (FOIL) SIDE



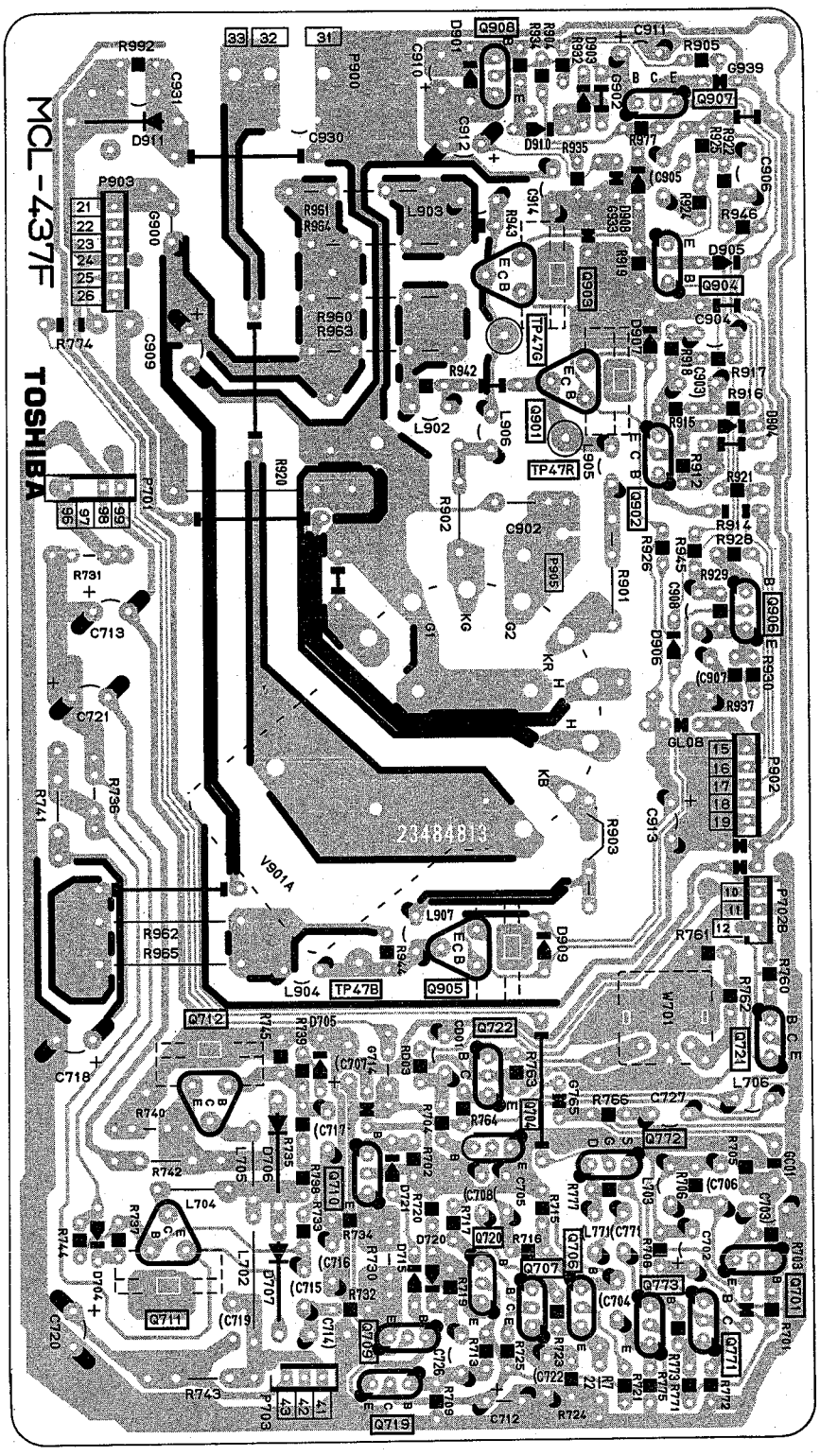
POWER/DEF/AUDIO BOARD PB5967 (2955DE) PB6014 (2955SH)

BOTTOM (FOIL) SIDE



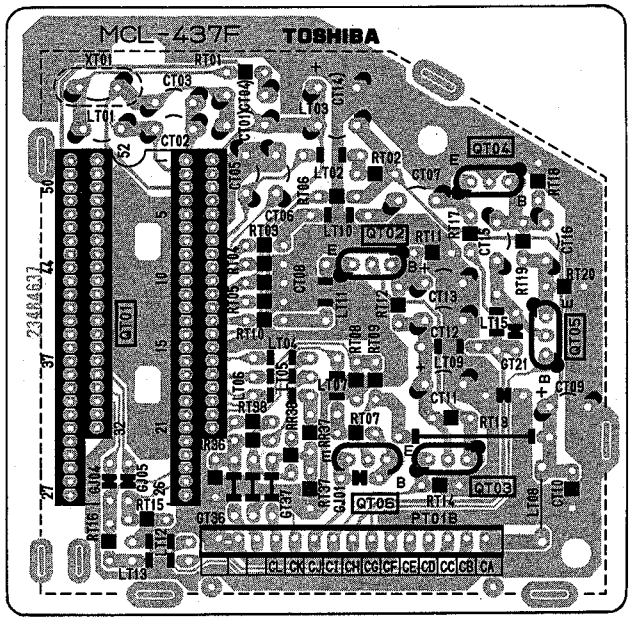
CRT DRIVE BOARD PB5965

BOTTOM (FOIL) SIDE



TELETEXT BOARD PB5728 (2955DE)

BOTTOM (FOIL) SIDE



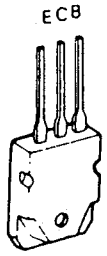
TERMINAL VIEW OF TRANSISTOR, etc.

① 2SA1015
2SC388ATM
2SC1815
2SA562TM
2SC1959
2SC1627
2SC2878
2SC2482
2SA1300
2SC752GTM

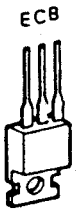
② 2SC2120
2SC2230
2SC2655

③ RN1203
RN1204
RN1205
RN1206
RN2201

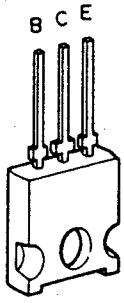
④ 2SA1265N



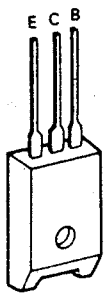
⑤ 2SD553
2SC1569
2SC2383
2SC3148
2SA1012



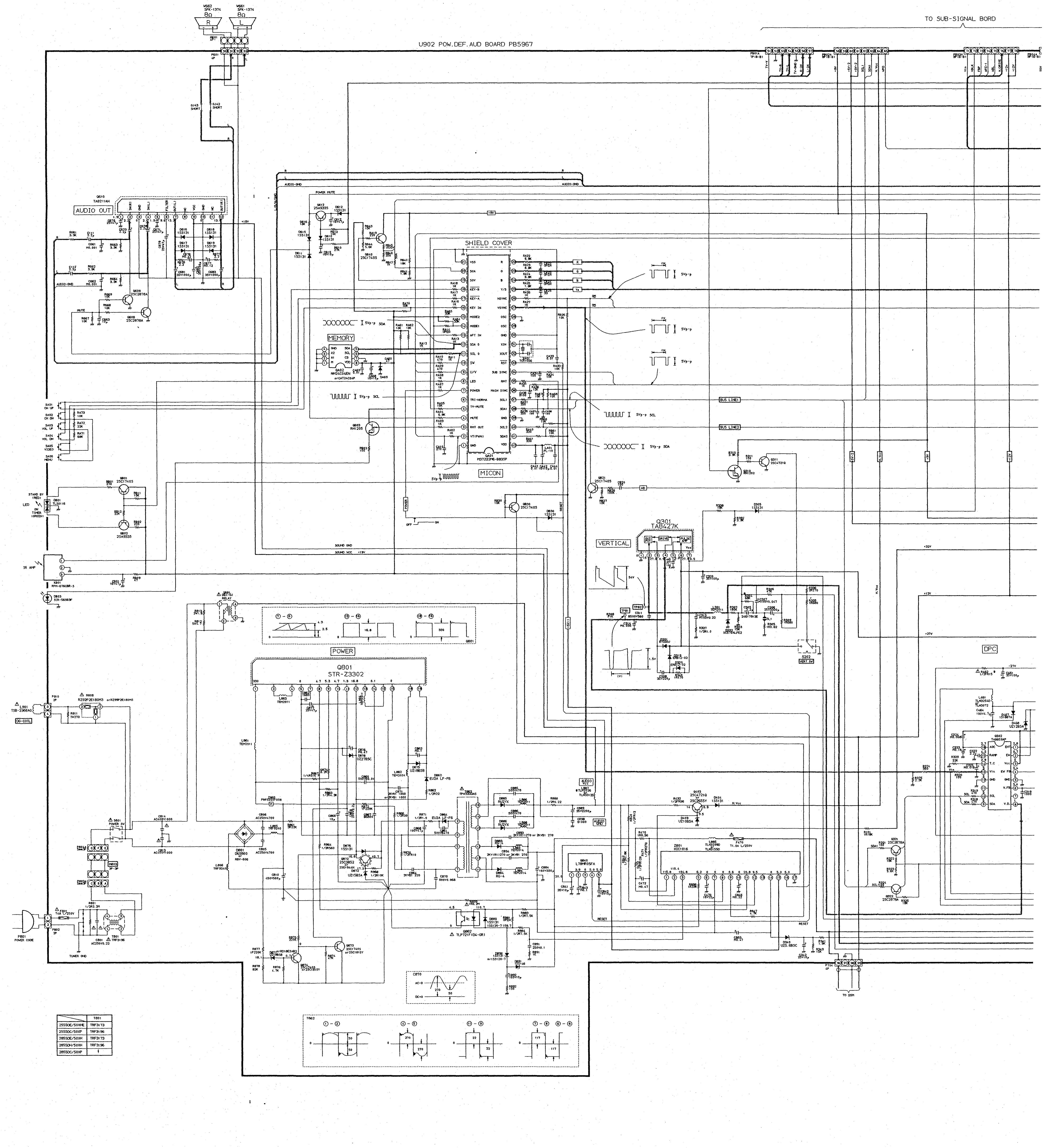
⑥ 2SC3619



⑦ ON4409



SCHEMATIC DIAGRAM MODEL: 2955DE (2/2)



TO SUB-SIGNAL BORD
U902 POW.DEF.AUD BOARD PB5967
W662 SPK-1374 8Ω R
W661 SPK-1374 8Ω L
AUDIO OUT
Q610 TA8211AH
SHIELD COVER
MEMORY
QA02 NM24C04EN or CAT24C04P
MICON
QA01 M37222M6-B83SP
BUS LINE1
BUS LINE2
VERTICAL
Q301 TA8427K
POWER
Q801 STR-Z3302
DPC
Q302 TA8859AP
Z801 HIC1016
Q840 L78MR05FA
DG-COIL
P801 POWER CODE
IR AMP
TUNER GND
AUDIO Vcc
AUDIO GND
VERT.5V
TO DSM

	T801
2555DE/50XHE	TRF3173
2555DC/50XP	TRF3196
2855DE/50XH	TRF3173
2855DH/50XH	TRF3196
2855DC/50XP	↑

TO SUB-SIGNAL BORD

H002
MVCS43 (IMA7)

H001
ECA11(TN3) VS TUNER
(SONY-VS TUNER)

DPC

HORIZONTAL

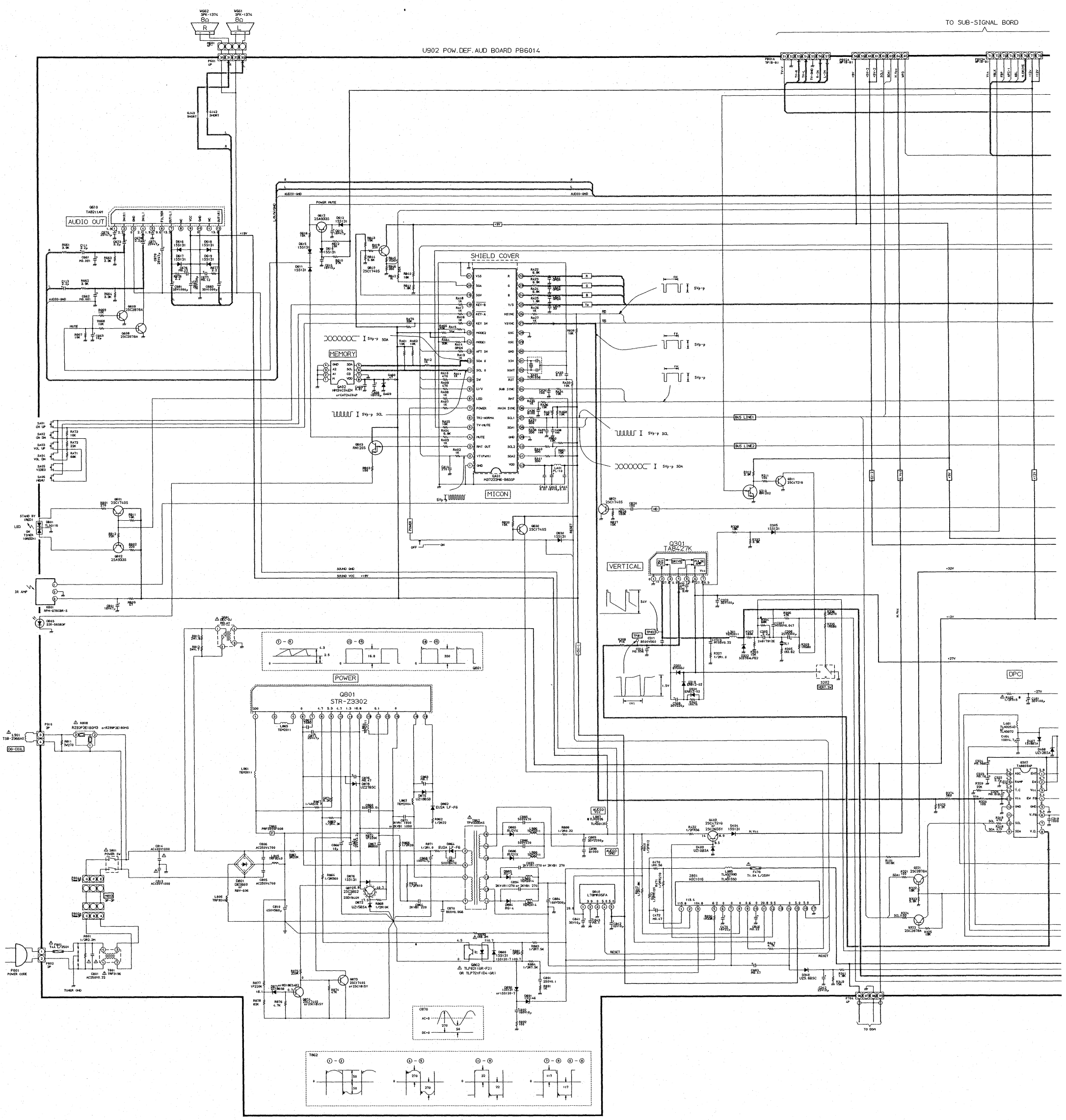
FBT
T401
TFB4132AD
or
TFB4132BD

TO CRT-D BOARD
H001
6P-6P

HEATER
GND
+180V

HDR. COIL
VERT. COIL

SCHEMATIC DIAGRAM MODEL: 2955SH (2/2)



TO SUB-SIGNAL BORD

H002
MVCS43B(IMA7)

H001
ECA11(TN3)
VS TUNER
(SONY-VS TUNER)

DPC

HORIZONTAL

FBT
T461
TFB4132AD
TFB4132BD

TO CRT-D BOARD
H901
6P-SP

HEATER
GND
+180V

HOR. COIL
VERT. COIL
L462
TDY-629F5

SCHEMATIC DIAGRAM MODEL: 2955DE (1/2)

CAUTION: The international hazard symbols "⚠" in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE on page 2. Do not degrade the safety of the receiver through improper servicing.

OBSERVATION OF VOLTAGES AND WAVEFORMS

1. Voltages read with VTVM from point shown to chassis ground, line voltage 220 volts, colour bar signal. Voltages reading may vary ±20%.
2. All waveforms are taken using a wide band oscilloscope and a low capacity probe.
3. Waveforms are taken using a standard colour bar signal.
4. Make sure that CONTRAST and COLOUR controls are in mid position and BRIGHTNESS control is almost in maximum position. Set other controls for best picture.

NOTES:

1. D.C. resistance value of a principal tr
   gram. These are measured for separate
2. The circuits are subject to change with
3. ⬬ : Solder links.

U905 TEXT BOARD PB5728

U903 SIGNAL BOARD PB5968

TO MAIN BOARD

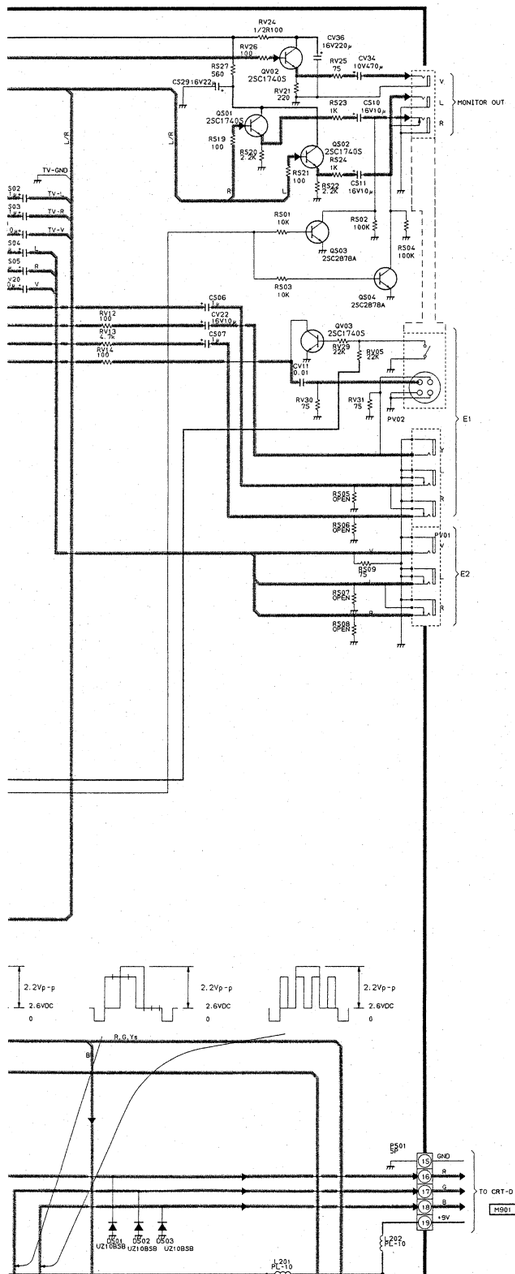
)TES:

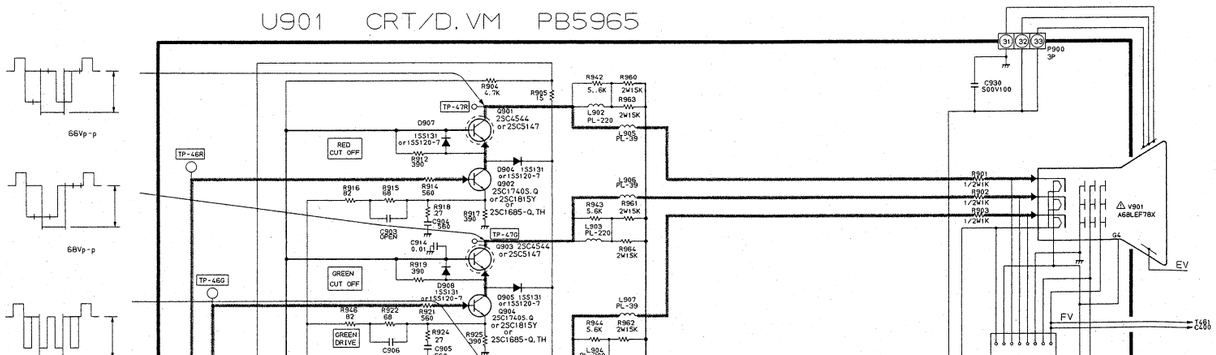
D.C. resistance value of a principal transformer is shown in this schematic diagram. These are measured for separated from the circuit.
The circuits are subject to change without notice.
⬬ : Solder links.

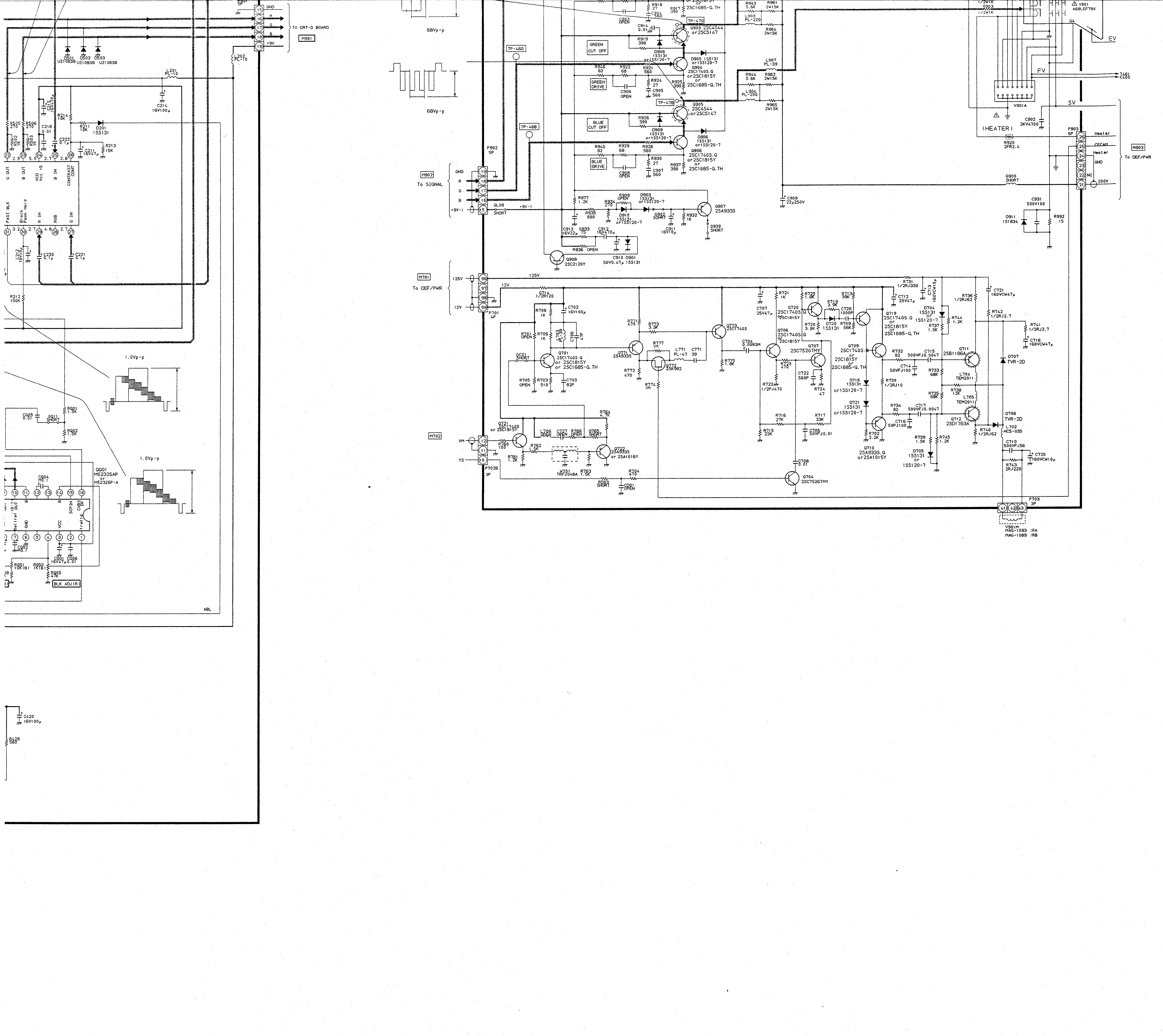
EXPRESSION

VALUE OF RESISTOR, CAPACITOR and INDUCTOR

1. Resistance is shown in ohm, k=1,000, M=1,000,000
2. Unless other wise noted in schematic, all capacitor values less than 1 are expressed in μF and the values more than 1 in pF.
3. Unless otherwise noted in schematic, all inductor values more than 1 are expressed in μH, and the values less than 1 in H.



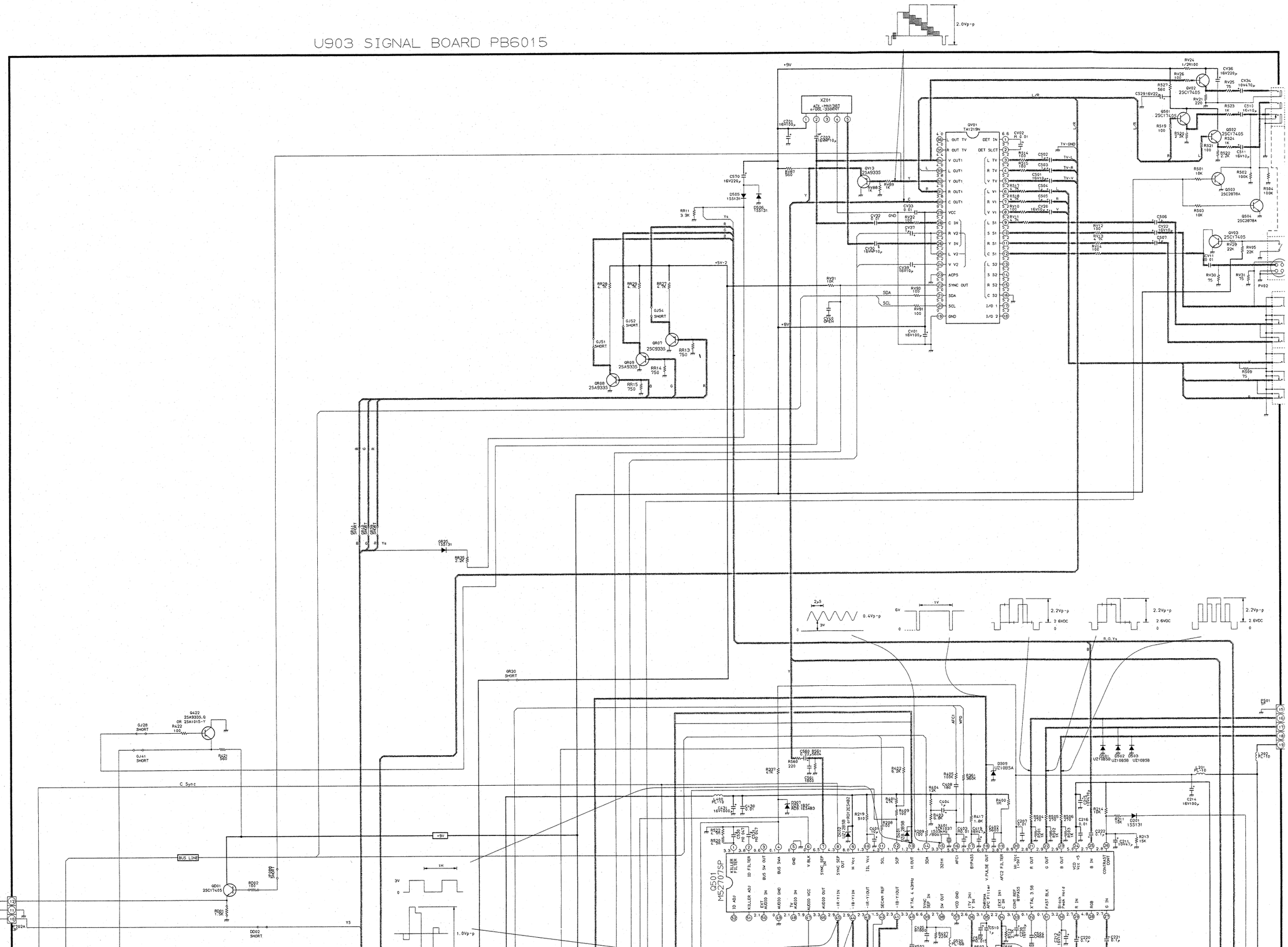


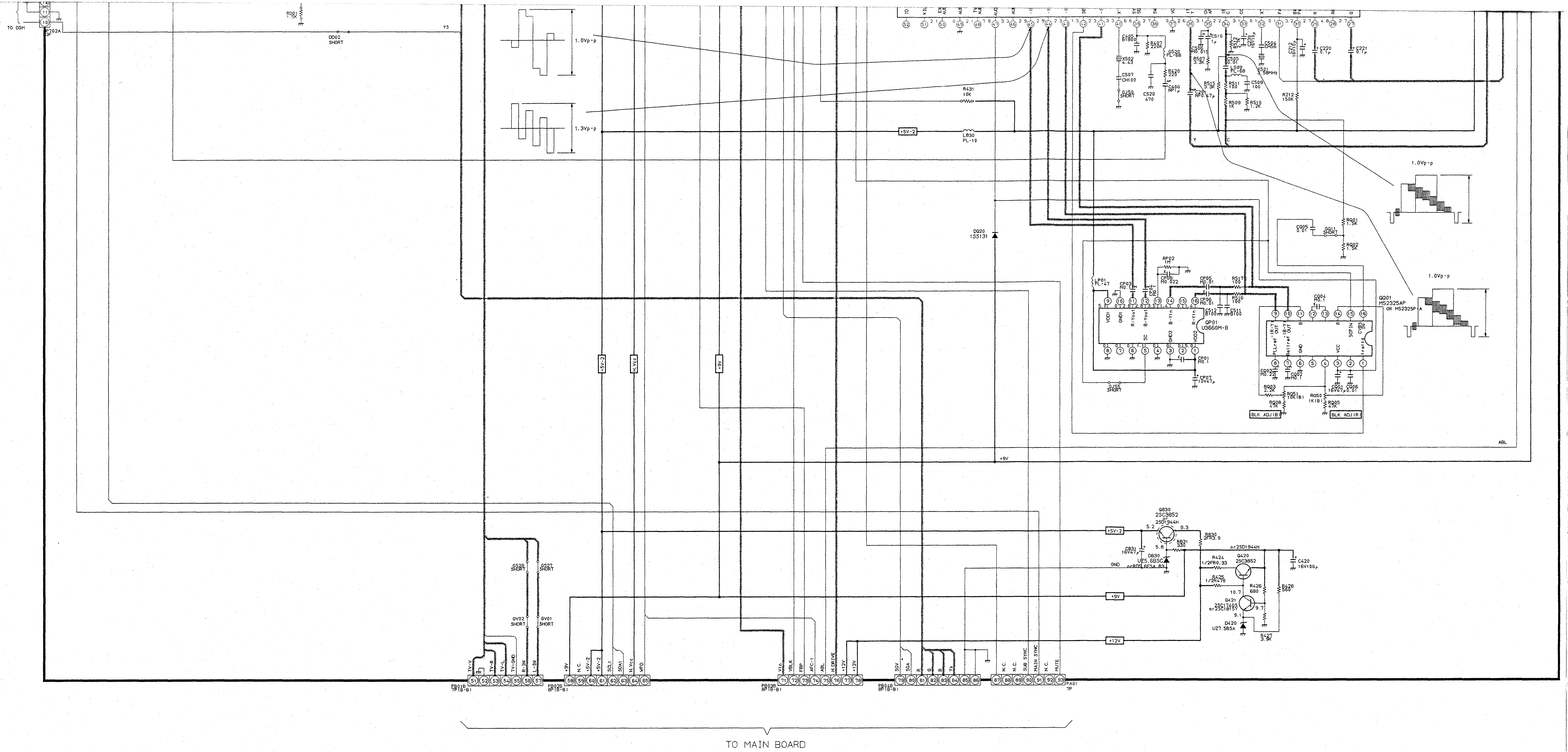


GND
R
G
B
+9V
TO CRT-D BOARD
M901
D501 D502 D503
UZ10BSB UZ10BSB UZ10BSB
L202 PL-10
L201 PL-10
C214 16V100μ
C215 16V470μ
R214 10K
R211 10K
D201 1SS131
R505 270
R506 270
C216 0.01
R502 1K
R503 1K
C222 0.1μ
C211 16V47μ
R213 15K
2.9 5.0 2.7 2.8
G OUT
B OUT
VCD Vcc +5
B IN
CONTRAST CONT
FAST BLK
Black Peak Hold
R IN
RGB
G IN
3.2 2.7 4.8 2.7
C212 16V10μ
C220 0.1μ
C221 0.1μ
R212 150K
1.0Vp-p
CQ05 0.01
GQ11 SHORT
RQ01 1.5K
RQ02 1.5K
1.0Vp-p
QQ01
M52325AP
or
M52325P-A
CQ04 M0.1
SCPIN
CVBS IN
Bellref
GND
VCC
frefid
CQ02 M0.1
CQ01 16V47μ
CQ06 0.01
RQ51 10K(B)
RQ50 1K(B)
RQ05 47K
BLK ADJ(R)
ABL
C420 16V100μ
R428 560
68Vp-p
68Vp-p
TP-46G
TP-46B
P902 5P
M902
To SIGNAL
+9V-1
GL08 SHORT
M701
To DEF/PWR
125V
12V
P701 4P
M702
VM
YS
P702B 3P
R918 27
C904 560
R917 390
2SC1685-Q.TH
C903 OPEN
C914 0.01
TP-47G
Q903 2SC4544 or 2SC5147
GREEN CUT OFF
R919 390
D908 1SS131 or 1SS120-7
D905 1SS131 or 1SS120-7
Q904 2SC1740S.Q or 2SC1815Y or 2SC1685-Q.TH
R946 82
R922 68
R921 560
GREEN DRIVE
C906 OPEN
R924 27
C905 560
R925 390
TP-47B
Q905 2SC4544 or 2SC5147
BLUE CUT OFF
R926 390
D909 1SS131 or 1SS120-7
D906 1SS131 or 1SS120-7
Q906 2SC1740S.Q or 2SC1815Y or 2SC1685-Q.TH
R945 82
R929 68
R928 560
BLUE DRIVE
R930 27
C908 OPEN
C907 560
R937 390
R943 5.6K
R961 2W15K
L903 PL-220
R964 2W15K
L907 PL-39
R944 5.6K
R962 2W15K
L904 PL-200
R965 2W15K
R977 1.2K
R909 OPEN
D903 1SS131 or 1SS120-7
R934 270
R935 680
D910 1SS131 or 1SS120-7
G902 SHORT
C911 16V10μ
R932 1K
Q907 2SA933S
G939 SHORT
C913 16V22μ
G933 75
C912 16V470μ
R936 OPEN
C910 50V0.47μ
D901 1SS131
Q908 2SC2120Y
C909 22μ250V
R903 1/2W1K
V901 A68LEF78X
G4
EV
FV
T461 C400
V901A
SV
(HEATER)
C902 2KV4700
R920 2FR2.4
P903 6P
Heater
CECAM
Heater
GND
NC
200V
M903
To DEF/PWR
G900 SHORT
C931 500V100
D911 1S1834
R992 15
G714 1/2R120
R708 1K
C702 16V100μ
R701 OPEN
R706 1K
L703 PL-39
C706 47P
GC01 SHORT
Q701 2SC1740S.Q or 2SC1815Y or 2SC1685-Q.TH
R705 OPEN
R703 510
C703 82P
R771 470
R773 3.3K
Q773 2SC1740S
Q771 2SA933S
R777 1M
L771 PL-47
C771 39
Q772 2SK982
R772 470
R774 1M
C704 0.0082M
R775 1.8K
C707 25V47μ
R721 1K
Q720 2SC1740S.Q or 2SC1815Y
R725 1.8K
R719 3.9K
C726 1000P
R713 39K
R720 3.9K
D720 1SS131
R709 56K
Q706 2SC1740S.Q or 2SC1815Y
Q707 2SC752GTMY
R723 470
C722 560P
R722 1/2PJ470
R724 47
R731 1/2RJ330
C713 160VCW10μ
C712 25V47μ
Q719 2SC1740S.Q or 2SC1815Y or 2SC1685-Q.TH
D704 1SS131 or 1SS120-7
R737 1.5K
R744 1.2K
Q709 2SC1740S.Q or 2SC1815Y or 2SC1685-Q.TH
R732 82
C715 500VFJ0.0047
C714 50VFJ100
D715 1SS131 or 1SS120-7
R730 1/2RJ10
D721 1SS131 or 1SS120-7
R733 68K
R735 68K
R738 12K
R736 1/2RJ62
C721 160VCW47μ
R742 1/2RJ2.7
R741 1/2RJ2.7
C718 160VCW47μ
Q711 2SB1186A
D707 TVR-2D
L704 TEM2011
L705 TEM2011
R734 82
C717 500VFJ0.0047
C716 50PJ100
Q712 2SD1763A
D706 TVR-2D
R740 1/2RJ62
L702 HC5-035
R716 27K
R717 33K
R715 22K
C705 50VFJ0.01
R702 2.2K
Q710 2SA933S.Q or 2SA1015Y
R739 1.5K
R745 1.2K
D705 1SS131 or 1SS120-7
C719 500VFJ56
C720 160VCW10μ
R743 2RJ220
Q721 2SC1740S or 2SC1815Y
R760 100
R761 1.2K
R762 1.5K
L706 OPEN
C727 OPEN
R766 OPEN
G765 SHORT
R764 4.7K
Q722 2SA933S or 2SA1016Y
W701 TRF2048A
R763 1.5K
RD03 SHORT
CD01 OPEN
R704 470
C708 0.01
Q704 2SC752GTMY
P703 3P
V901M
MAG-1093 :RA
MAG-1089 :RB

SCHEMATIC DIAGRAM MODEL: 2955SH (1/2)

U903 SIGNAL BOARD PB6015


2.0Vp-p
+9V
XZ01
ADL-MM1387
e-DBL-330KNT
C701
16V100μ
C703
16V4P10μ
C570
16V220μ
D505
1SS131
D506
1SS131
RR11
3.3K
Ys
RR28
2.4K
RR29
2.4K
RR27
2.4K
GJ54
SHORT
GJ52
SHORT
GJ51
SHORT
QR07
2SC9335
QR09
2SA9335
QR08
2SA9335
RR13
750
RR14
750
RR15
750
R
G
B
+5V-2
QV13
2SA9335
RV88
1K
RV87
560
QV01
TA1219N
L OUT TV
R OUT TV
V OUT1
L OUT1
Y OUT1
R OUT1
C OUT1
VCC
C IN
R V2
Y IN
L V2
V V2
ACPS
SYNC OUT
SDA
SCL
GND
DET IN
DET SLCT
L TV
R TV
V TV
L V1
R V1
V V1
L S1
S S1
R S1
C S1
L S2
S S2
R S2
C S2
I/O 1
I/O 2
CV01
16V100μ
RV31
10K
CV40
OPEN
RV30
100
RV91
100
SDA
SCL
CV36
16V220μ
RV24
1/2R100
RV26
100
RV25
75
CV34
10V47μ
QV02
2SC1740S
RV27
560
RV23
220
C52916V22μ
Q501
2SC1740S
RS19
100
RS20
2K
RS23
1K
C512
16V10μ
Q502
2SC1740S
RS24
1K
RS21
100
RS22
2.2K
C511
16V10μ
RS01
10K
Q503
2SC2878A
RS02
100K
RS04
100K
Q504
2SC2878A
RS03
10K
TV-GND
TV-L
TV-R
TV-V
C502
1μ
C503
1μ
C501
16V10μ
C504
1μ
C505
1μ
C506
1μ
C507
1μ
C508
1μ
RV10
100
RV11
100
RV12
100
RV13
2.2K
RV14
100
CV26
16V10μ
CV27
16V10μ
CV22
16V10μ
QV03
2SC1740S
RV29
22K
RV05
22K
RV30
75
RV31
75
PV02
RS99
75
CV33
0.01
CV32
0.01
CV37
1μ
CV30
16V4P10μ
CV38
16V10μ
RV32
10K
RR20
2.4K
RR21
2.4K
RR22
2.4K
RR23
2.4K
RR24
2.4K
RR25
2.4K
RR26
2.4K
RR27
2.4K
RR28
2.4K
RR29
2.4K
RR30
2.4K
RR31
2.4K
RR32
2.4K
RR33
2.4K
RR34
2.4K
RR35
2.4K
GR30
SHORT
GR31
SHORT
GR32
SHORT
GR33
SHORT
GR34
SHORT
GR35
1SS131
GJ28
SHORT
GJ41
SHORT
Q422
2SA9335-G
OR
2SA1015-Y
RA22
100
RA21
560
C Sync
BUS LINE
QD01
2SC1740S
RD02
100
RD01
1.5K
TO DSM
CN702A
DD02
SHORT
YS
1H
3V
0
1.0Vp-p
0.4Vp-p
6V
1V
2.2Vp-p
2.6VDC
R,G,Ys
B
Y
C
L/R
TV-GND
TV-L
TV-R
TV-V
Q501
M52707SP
KILLER FILTER
ID FILTER
BUS SW OUT
BUS SW
GND
V BLK
SYNC SEP IN
SYNC SEP OUT
H Vcc
I2L Vcc
SCL
SCP
H OUT
SDA
32Hf
AFC1
BYPASS
V PULSE OUT
AFC2 FILTER
Hi Vcc (+9V)
R OUT
G OUT
B OUT
VCO Vcc (+5)
B IN
CONTRAST CONT
ID ADJ
KILLER ADJ
EXT AUDIO IN
AUDIO GND
AUDIO IN
AUDIO OUT
AUDIO VCC
-IR-Y1IN
-IR-Y1OUT
-IB-Y1IN
-IB-Y1OUT
SECAM REF
-IB-Y1OUT
XTAL 4.43MHz
SYNC SEP IN
5V OUT
VCO GND
Y IN
CBPIN
APC FILter
EXT IN
C IN
CONT REF
BYPASS
XTAL 3.58
FAST BLK
Black Pedestal Hold
R IN
RGB
G IN
AFC1
VCO
D501
UZ10B5B
D502
UZ10B5B
D503
UZ10B5B
D369
UZ10B5A
D201
1SS131
L201
PL-10
L202
PL-10
L203
PL-10
C214
16V100μ
C560
0.022
R560
220
R561
680K
R537
4.7K
R422
2.2K
R420
100K
R361
680K
R424
1M
C404
1μ
C408
180
R417
1.8K
R418
180K
R600
1M
R601
2.2K
R209
100
C401
1μ
R208
510
R219
510
C560
0.022
R561
680K
C560
0.022
R560
220
C560
0.022
R561
680K
C560
0.022
R560
220
C560
0.022
R561
680K
C560
0.022
R560
220


TO DSM
P702A
3P
RD01
1.5K
DD02
SHORT
YS
1.0Vp-p
1.3Vp-p
R431
10K
+5V-2
L830
PL-10
DQ20
1SS131
+9V
H.Vcc
C405
B1800
R407
220K
G520
PL-68
X502
4.43
R420
220
C507
CH100
C406
NP1μ
GJ50
SHORT
C520
470
C510
1μ
C506
M0.015
R507
3.3K
C230
16V10μ
C504
CH56
C505
0.01
L509
PL-68
X501
3.58MHz
R515
3.3K
R511
100
C509
100
C201
NP0.47μ
R509
1K
R510
1.2K
C212
16V10μ
C220
0.1μ
C221
0.1μ
R212
150K
Y
C
1.0Vp-p
CQ05
0.01
GQ11
SHORT
RQ01
1.5K
RQ02
1.5K
RP02
1M
CP08
M0.022
LP01
PL-47
CP03
M0.1
CP04
M0.1
CP05
M0.01
R517
100
R516
100
CP06
M0.01
C512
B100
C511
B100
VDD1
GND1
R-Yout
B-Yout
B-Yin
R-Yin
SC
GND2
VDD2
QP01
U3660M-B
CP01
M0.1
CP07
10V47μ
GJ55
SHORT
CQ04
M0.1
QQ01
M52325AP
OR M52325P-A
(R-Y) OUT
(B-Y) OUT
B
R
SCPIN
CVBS IN
PLLref
Bellref
GND
VCC
frefid
CQ03
M0.22
CQ02
M0.1
CQ01
16V47μ
CQ06
0.01
RQ03
2.2K
RQ51
10K(B)
RQ50
1K(B)
RQ08
47K
RQ05
47K
BLK ADJ(B)
BLK ADJ(R)
ABL
Q830
2SC3852
or
2SD1944H
5.2
9.3
R830
2FR3.9
C831
16V47μ
5.8
R831
330
D830
UZ5.6BSC
or RD5.6ESA B3
GND
or 2SD1944H
R424
1/2FR0.33
Q420
2SC3852
C420
16V100μ
R425
1/2R470
R426
680
R428
560
10.7
Q421
2SC1740S
or 2SC1815Y
9.7
9.1
D420
UZ7.5BSA
R427
3.9K
+9V
+12V
GS28
SHORT
GS27
SHORT
GV02
SHORT
GV01
SHORT
TV-V
TV-R
TV-L
TV-GND
R-IN
L-IN
+9V
N.C.
+5V-2
+5V-2
SCL1
SDA1
H.Vcc
WPD
Vin
VBLK
FBP
AFC-1
ABL
H.DRIVE
+12V
+12V
SGV
SGA
R
G
B
Ys
N.C.
N.C.
SUB SYNC
MAIN SYNC
N.C.
MUTE
PB01B
7P(B-B)
PB02B
8P(B-B)
PB03B
8P(B-B)
PB04B
8P(B-B)
PA01
7P
TO MAIN BOARD

U901 CRT/D.VM PB5965

66Vp-p

68Vp-p

68Vp-p

2.2Vp-p 2.6VDC 0

2.2Vp-p 2.6VDC 0

R,G,Ys

TO CRT-D BOARD

M901

P201 PC-10

D201 1SS131

D202 UZ10BSB

D203 UZ10BSB

D204 UZ10BSB

M902 To SIGNAL

M701 To DEF/PWR

M702

P902 5P

P701 6P

P702 3P

P703 3P

P900 3P

P903 6P

V901 A68LEF78X

V901A

V901M M40-1093

H903 To DEF/PWR

RED CUT OFF

GREEN CUT OFF

GREEN DRIVE

BLUE CUT OFF

BLUE DRIVE

(HEATER)

EV

FV

SV

Heater

CECAM

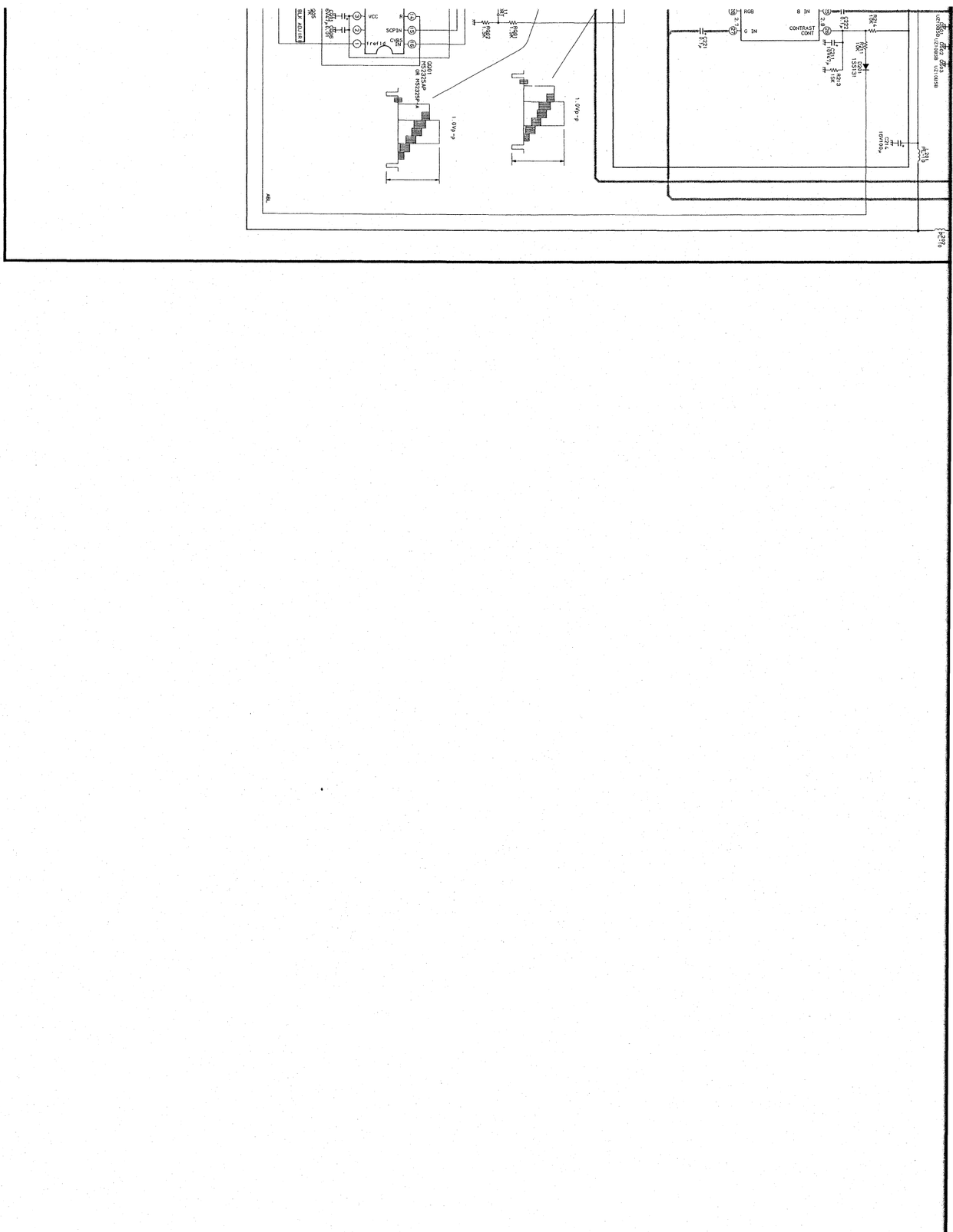
Heater

GND

NC

200V

Z481 C480


VCC
SCPIN
Vref1
R
G
B
BLK ADJ
RGB
B IN
G IN
CONTRAST
CONT
MSD125-6P
OR MSD225P-6
d-A/D 1
d-A/D 1

SPECIFICATIONS

Input Power Rating:	125 watts, AC 110 ~ 240 volts, 50/60 Hz				
Aerial Input Impedance:	75 ohm unbalanced type for VHF, UHF and CATV				
Television System and Channels:	**System**	**Channel**	**VHF**	**UHF**	**CATV**
	PAL B/G	CCIR	2 ~ 12	21 ~ 69	X ~ Z + 2, S1 ~ S41
	PAL D/K	CHINA	1 ~ 12	13 ~ 57	Z-1 ~ Z-35
	PAL I	UK	–	21 ~ 69	–
	SECAM B/G	CCIR	2 ~ 12	21 ~ 69	X ~ Z + 2, S1 ~ S41
	SECAM D/K	OIRT	1 ~ 12	21 ~ 69	X-1 ~ X-19
	NTSC M	US	2 ~ 13	14 ~ 79	A-6 ~ A-1, A ~ W, AA ~ BBB
	NTSC M	JAPAN	1 ~ 12	13 ~ 62	M1-M10, S1 ~ S41
Special RF Signal:	Colour system		4.43NTSC		PAL 60Hz
	Sound system		5.5/6.0/6.5 MHz		5.5/6.0/6.5 MHz
Colour System (Video input) :	PAL / SECAM / 4.43 NTSC / 3.58 NTSC / 60 Hz PAL / 50 Hz 3.58 NTSC				
Intermediate Frequencies:	Picture I-F carrier frequency ..... 38.0 MHz				
	Sound I-F carrier frequency ..... 32.5 MHz-B/G, 33.5 MHz-M 32.0 MHz-I, 31.5 MHz-D/K				
	Colour sub-carrier freqquency ..... 33.57 MHz				
Picture Tube:	Type 29 (68 cm) (measured on diagonal of viewable picture area), 110° deflection				
Sound Output:	5 watts x 2 / 8 ohms				
Speakers:	60 mm x 120 mm, 2pcs				
Aux. Terminals:	AUDIO/VIDEO INPUT socket, MONITOR OUTPUT socket				
Dimensions:	Height ..... 584 mm Width ..... 808 mm Depth ..... 520 mm				
Mass:	41.0 kg				
Features:	OFF-timer, No signal off, Blue back screen, VIDEO and AUDIO input terminals, MONITOR output terminals				

Specifications are subject to change without notice.